

Amphibian and Reptile Survey of the Kootenai National Forest: 1994



A Report to:

USDA Forest Service

Kootenai National Forest
506 U.S. Highway 2 West
Libby, MT 59923

Submitted by

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ABSTRACT

A total of 149 surveys and/or sightings were made in the Kootenai National Forest between May, 1993 and September, 1994. Of this total, 134 were surveys of ponds, lakes, seeps, streams or other wetlands by 1 or 2 individuals. Each survey took 30 minutes - 2 hours and consisted of a thorough search of the wetland perimeter and netting of near shore aquatic habitats for larvae and tadpoles. Stream sampling was done either by hand and dipnet or electrofishing. Seeps were checked by rolling over rocks and logs in and near wet areas. In addition to surveys, sightings were made from road kills, vocal identifications or fortuitous sightings by other reliable individuals.

The entire forest was covered in the survey with a minimum of 8 person days (1 person for 8 days) spent in each district. Efforts were made to sample all types of wetland habitats at different elevations albeit given time restraints and the large area, the majority of surveys were within 2-3 miles of established roads and between 2800-5000 feet elevation.

Among amphibians, the Long-toed salamander and the Spotted frog were found throughout the forest. The Tailed frog was found in most streams where habitat appeared suitable. The Pacific chorus frog and the Western toad showed a patchy distribution and their populations may be in decline. The Leopard frog appears to have been extirpated from the Kootenai National Forest (and a large section of western Montana). The Coeur D'Alene salamander, a Sensitive Species, was found in four districts at limited sites. Populations seemed to be stable. The two species of Garter snakes were the only reptiles found commonly in all districts, although Painted turtles were seen infrequently in lakes and slower moving waters at lower elevations. The Rubber boa, Western skink, and Alligator lizard were all seen on at least one occasion.

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Museum records were received from: American Museum of Natural History, Academy of Natural Science, Brigham Young University, California Academy of Science, Carnegie Museum, University of Puget Sound Museum, Field Museum of Natural History, Glacier National park Museum, Illinois Natural History Survey, University of Kansas, Los Angeles County Museum, Louisiana State University Museum of Zoology, Museum of Comparative Zoology - Harvard, Milwaukee Public Museum, Montana State University Museum, Michigan State University Museum, North Carolina State Museum of Natural History, Northern Louisiana University Museum, University of Colorado Museum, University of Georgia Museum of Natural History, University of Idaho Museum, University of Michigan Museum, University of South Dakota, United States National Museum of Natural History, University of Texas - Arlington, University of Texas - El Paso, and Peabody Museum - Yale.

INTRODUCTION

Many amphibians are apparently declining in the western U.S. and world-wide (Corn and Fogelman 1984, Phillips 1990). Acid rain, ozone depletion, pollution by toxic chemicals and heavy metals, predation and/or competition by exotic species, habitat alteration, disease, immune system deficiency, and climate change have all been suggested as possible causes.

Bullfrogs and bass have been introduced into waters on or near the Kootenai National Forest (KNF); both have been implicated in declines of native amphibian populations. Past forestry practices and large scale logging continue to be detrimental to resident herpetofauna (Bury et al. 1991). The Tailed frog (*Ascaphus truei*), present on the KNF, is thought to be one of the most sensitive indicators of stream-side and aquatic community health in forested landscapes (R. B. Bury, pers. comm.). Preliminary data indicate the Leopard frog (*Rana pipiens*) has disappeared over much of its former range in western Montana.

The U.S. Fish and Wildlife Service lists one Montana amphibian as a candidate species: the Spotted frog (C2) (*Rana pretiosa*). The Western toad (*Bufo boreas*) has recently been petitioned for listing (L. Nordstrom, USFWS, Helena, pers. comm.). The U.S. Forest Service Region 1 lists the Coeur d'Alene salamander as "Sensitive" and is considering adding the northern Leopard frog and Spotted frog. The Montana Natural Heritage Program and the Montana Department of Fish, Wildlife and Parks list 4 amphibians [Coeur d'Alene salamander (*Plethodon idahoensis*), Idaho giant salamander (*Dicamptodon aterrimus*), Canadian toad (*Bufo hemiophrys*), Wood frog (*Rana sylvatica*)] and 5 reptiles [Snapping turtle (*Chelydra serpentina*), Spiny softshell (*Apalone spinifera*), Western hognose snake (*Heterodon nasicus*), Smooth green snake (*Opheodrys vernalis*), Milk snake (*Lampropeltis triangulum*)] as species of special concern in the state; the Leopard frog is being considered for addition. The Tailed frog was recently removed as a species of special concern due to its apparently wide-spread and stable populations in western Montana. Of these, the Spotted frog, Leopard frog, Wood frog, Western toad, Idaho giant salamander, and Coeur d'Alene salamander occur, or potentially occur, on the KNF.

METHODS AND MATERIALS

Historic locations of amphibians and reptiles were found in the literature (see Bibliography) and museum specimen records. Records were received from over 20 major museums in North America. We have entered locations from these sources into a database and digitized them. Records from the Museum of Vertebrate Zoology (University of California - Berkeley) have not yet been received.

Survey sites were chosen based on 4 criteria: 1) Location of streams, seeps and wetlands on topographic maps; 2) past survey sites as given in the literature and personal communications; 3) accessibility of the wetlands by roads or hiking trails; 4) conversations with district biologists on stream-seep-wetland locations and past Forest Service surveys. Based on the above, 2-6 sites were chosen daily for surveys. Thirty minutes - 2 hours were spent at each site depending upon the size of the area and what was found. Initially, the entire shoreline or a major part thereof, was searched by walking slowly along the edge and up into the surrounding vegetation, including rolling over rocks and logs. At regular intervals, the aquatic habitat was sampled for tadpoles or larvae using dipnets. If the initial sampling showed amphibian/reptile species present, further effort was expended in order to get some idea of abundance and distribution. Minnow traps were occasionally used overnight to sample aquatic stages. Night sampling was common in seep areas. Due to the short breeding season of many amphibians, each district was sampled sequentially for one-three day intervals. After all districts were sampled, the cycle was repeated. The drought and fires of 1994 reduced sampling efforts in some areas.

In July-August 1994, a significant amount of time was involved electrofishing streams for the Tailed frog. Normal procedure involved sampling 10-100 m of stream using a frequency of 120 cps and 200-250 volt output. As soon as 1 or 2 of the tadpoles/adults were found, electrofishing stopped (this often occurred in the first 10 m of stream). If no individuals were found, sampling continued for about 100 m at which point either the stream was sampled at some other point or not sampled again. The majority of streams were sampled at only one or two sites but in several streams (Libby Creek, Grave Creek, Deep Creek), efforts were made to sample the stream at numerous places (up to 8 sites) from lower to higher elevations in order to determine distribution along the stream. Given the short segments of stream sampled and the low voltage, rarely was fish mortality observed. At the request of district biologists, some areas were not electrofished due to the presence of bull trout (*Salvelinus confluentus*) or interior redband trout (*Oncorhynchus mykiss gibbsi*) populations in the streams. In those situations, efforts to capture Tailed frogs were made by rolling over rocks with a net on the downstream side; this method is not as effective as electrofishing.

An attempt was made to collect the first few individuals of a species in any area, which were identified, the development stage observed and/or measured for body length, sexed if possible and released. Representative samples of the more common species in each latilong were preserved for permanent museum records and will be deposited at the Idaho State University Museum. Water temperature, air temperature, pH and a general description of the area were recorded. Standard data sheets used during this project are given in Appendix 4; the amphibian survey data sheet was developed by U.S. Fish and Wildlife Service and is used extensively by a

variety of researcher in the western U.S. Please note that much site specific data was gathered during these surveys and not all data are analyzed or presented in this report. It is available from the Montana Natural Heritage Program.

RESULTS AND DISCUSSION

A total of 134 sites were surveyed of which 104 had one or more amphibian or reptile species present (Figure 1, Appendices 1 and 2). Although no species were found at 28 sites, their absence may have been due to the time of day, weather conditions, or other factors at the time of sampling. Among the 28 sites were a number of seep areas which were being searched specifically for the Coeur d'Alene salamander which can be very difficult to find. The number of sites varied from 17-29 per district (Fortine - 22, Three Rivers - 23, Rexford - 21, Libby - 22, Cabinet - 29, Fisher River - 17). The lower number of sites in the Fisher River district was due in part to the extensive private land holdings within the district. With three exceptions, all of the sites were on KNF land.

In addition to the 134 surveys, there were a number of sightings (i.e. road kills, chance observations) for which that data are available and the sightings considered reliable. Location data from surveys, sightings, and historic records (from the literature and museum specimens) are listed in Appendix C; these records were used in constructing the enclosed distribution maps.

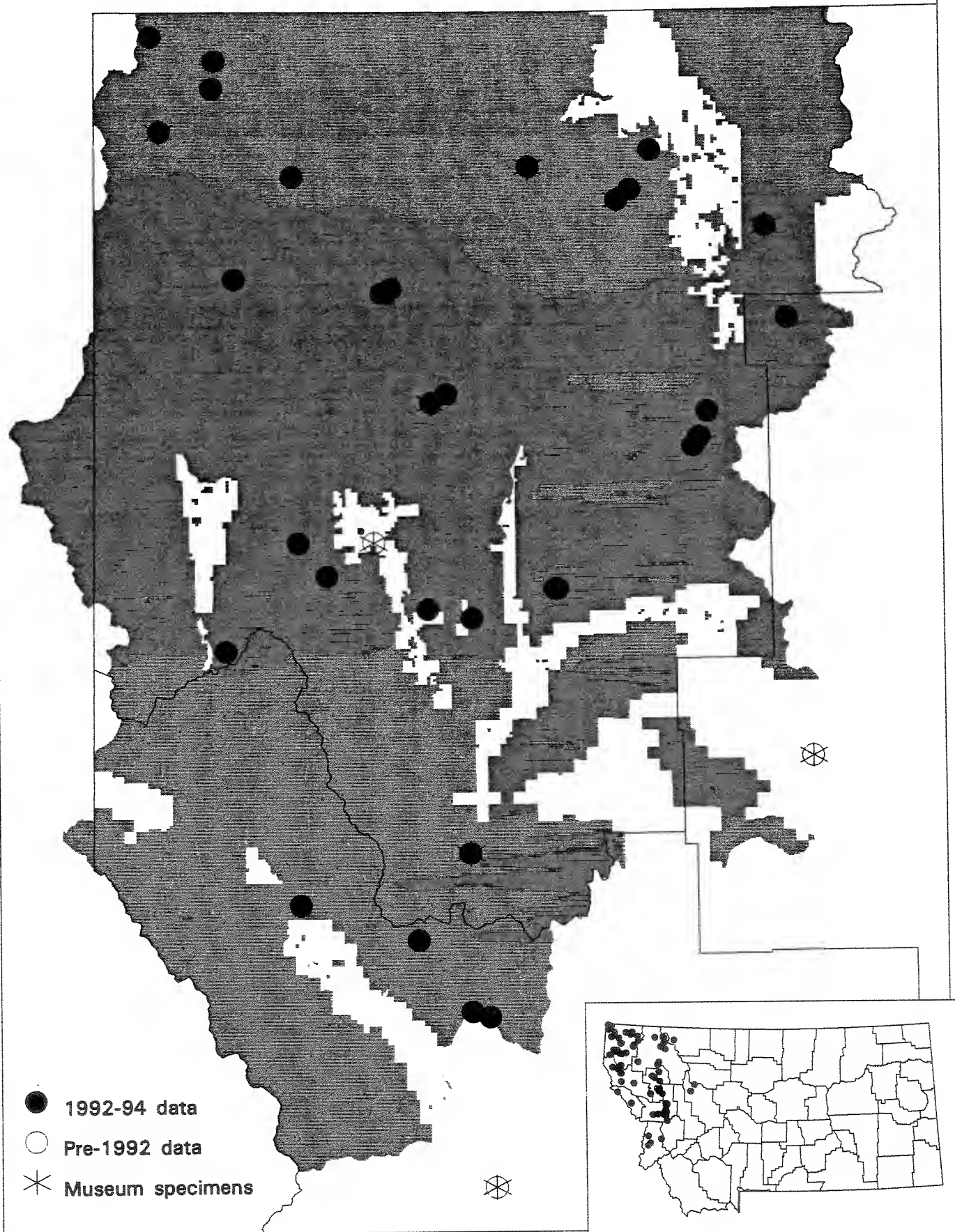
There had been no systematic survey of amphibians and reptiles in the KNF. Based on approximately a half-dozen publications which have recorded species in or near the Forest and from personal accounts, a list of 12 amphibians and 9 reptiles are considered possible inhabitants. Of these, 6 amphibians and 5 reptiles were actually observed during the study. The following results are presented as a species summary for the Forest as a whole, followed by specific information on each district.

[REDACTED]



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Ambystoma macrodactylum -- Long-toed Salamander
Occurrences on or near the Kootenai National Forest, Montana



Species Present on the Kootenai National Forest

Long-toed Salamander (*Ambystoma macrodactylum*)

Description: Adults are dark gray to black with an irregular (and sometimes broken) green to yellow stripe down the middle of the back. Adult snout-vent lengths vary from 2 to 3.25". All salamanders have smooth moist skin without scales. Adult long-toed salamanders can be told from other Montana species by a combination of: 1) the longest toe on the hind foot which is longer than the sole of the hind foot; 2) lack of a nasolabial groove running vertically from nostril to mouth; and 3) 12-13 costal grooves on side of body. Egg masses are typically laid in small clusters of 5-100 eggs but may be laid singly (Nussbaum et al. 1983). Within the clear gelatinous eggs, the embryos are light colored, while frog and toad embryos are dark. Larval long-toed salamanders are typically brown colored, found in ponds, have three external gills, and are relatively small (<1.75" snout-vent) and slender. They are distinguished from tiger salamander larvae by the 9-13 gill rakers on the inside of the 3rd gill arch (17-22 rakers on the tiger salamander).

Habitat and Habits: Long-toed salamanders are found in a wide variety of habitats from sagebrush to alpine. They breed in ponds or lakes, often in those without fish present. Adults migrate to the breeding ponds immediately after snow-melt and are usually the earliest breeding amphibians in western Montana. The earliest observation of egg masses in the KNF in 1994 was 28 April in ponds near Bull Lake, although the eggs were at least 10 days old by that date; eggs were seen as late as 25 May 93 at Frog Lake. Newly hatched larvae were observed 28 April 94 in ponds at Bull Lake, and as late as 8 September 94 at Cody Lakes. Very small larvae seen in Grouse Lake on 1 August 1993 indicate at least some populations of Long-toed salamanders on the KNF may take over a year to transform. In the Pacific Northwest eggs hatch in 3-6 weeks and metamorphosis takes 2-14 months (Nussbaum et al. 1983, Leonard et al. 1993). Individuals were found in all of the Forest districts from 2350 - 5350 ft. elevation. They occurred commonly with the Spotted frog in ponds, lakes, or backwaters of streams, although sometimes they were the only amphibian inhabiting a pond.

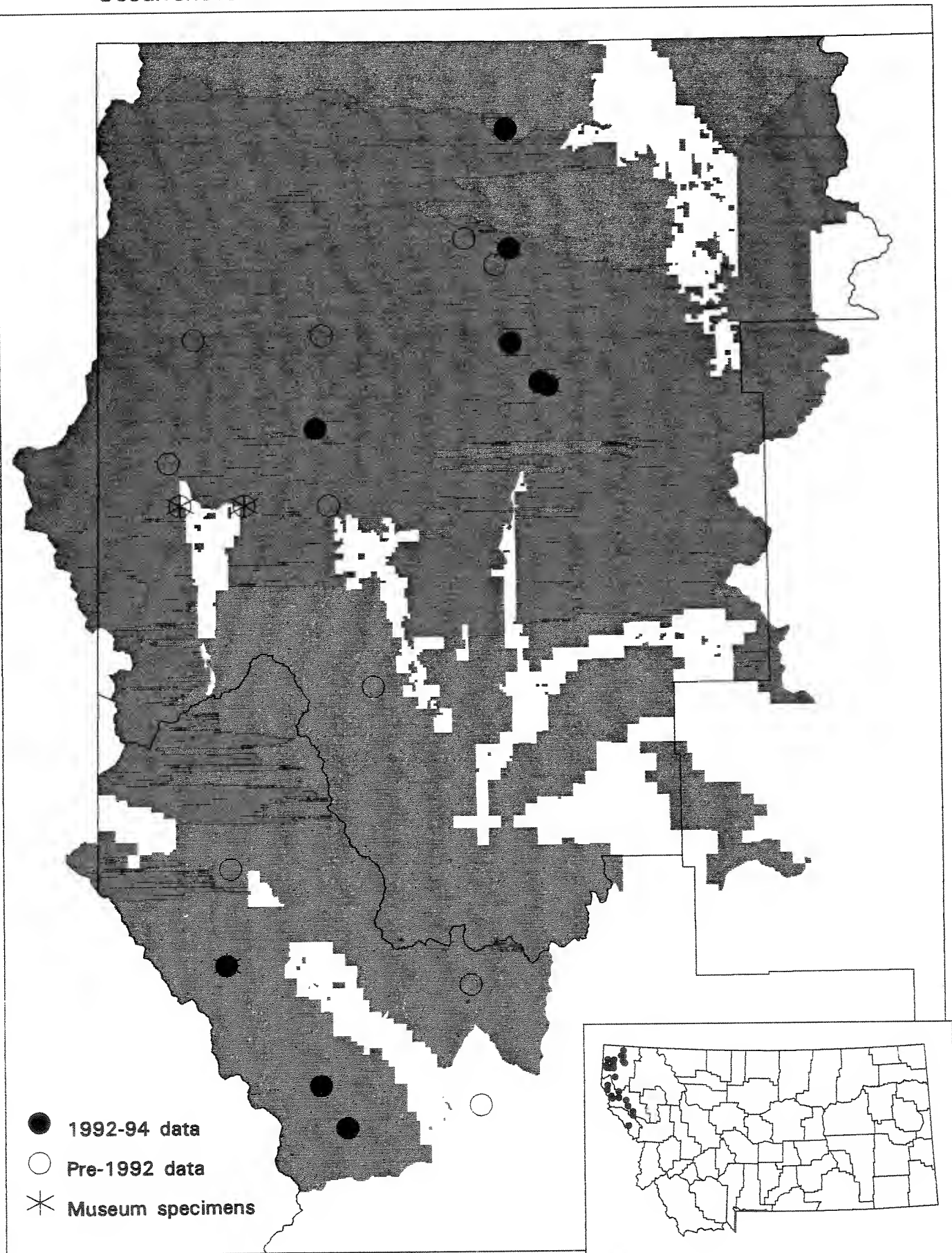
Surveying: Larvae can be seen in ponds during the day and sampled with a dipnet. During the breeding season adults may also be seen in the water. During the rest of the spring, summer and fall adults may occasionally be found in and under logs on the forest floor.

Metamorphosed individuals are active at night, particularly when it is warm and rainy; they may be captured at this time by either night searches or pitfall traps.

Status: The most common salamander in western Montana. Appears common and wide-spread in suitable habitat on the KNF and elsewhere in western Montana.

Montana Natural Heritage Program rank: G5 S5.

Plethodon idahoensis -- Coeur d'Alene Salamander
Occurrences on or near the Kootenai National Forest, Montana



Coeur d'Alene Salamander (*Plethodon idahoensis*)

Description: The Coeur d'Alene salamander is a member of the Plethodontidae, the only group of lungless salamanders in North America and the only amphibians which lay their eggs out of water. They respire through the skin having an especially rich vascular area in the throat region. Adults are usually dark gray to black with a green, red, yellow, or orange stripe down the middle of the back. The stripe typically has irregular edges, but some individuals may have even edges. Coeur d'Alene salamanders have relatively long legs and short, stubby toes. The adult has a snout-vent length of 2-2.4". Adult Coeur d'Alene salamanders can be distinguished from other Montana species by a combination of: 1) the longest toe on the hind foot which is shorter than the sole of the hind foot; 2) a nasolabial groove running vertically from nostril to mouth (may require magnification to see); and 3) 14-15 costal grooves on side of body. The egg cluster contains between 7-12 small yolked eggs. There is no larval stage and the newly hatched young resemble the adults in coloration.

Habitat and Habits: Coeur d'Alene salamanders are very habitat restricted (Cassirer et al. 1994). They are found in springs or seeps, waterfall spray zones, and at the edges of streams. Nearly all sites have fractured rock formations present and nearby habitat is typically forested. Coeur d'Alene salamanders move far down into the interstitial spaces between rocks for protection from desiccation during dry summer months and freezing during the winter (Wilson and Larsen 1988). Mating takes place in both late summer and spring (Lynch 1984). Eggs presumably are laid far down in the rocks, and juveniles are terrestrial. Unlike all other salamanders in Montana, no aquatic-larval stage is present.

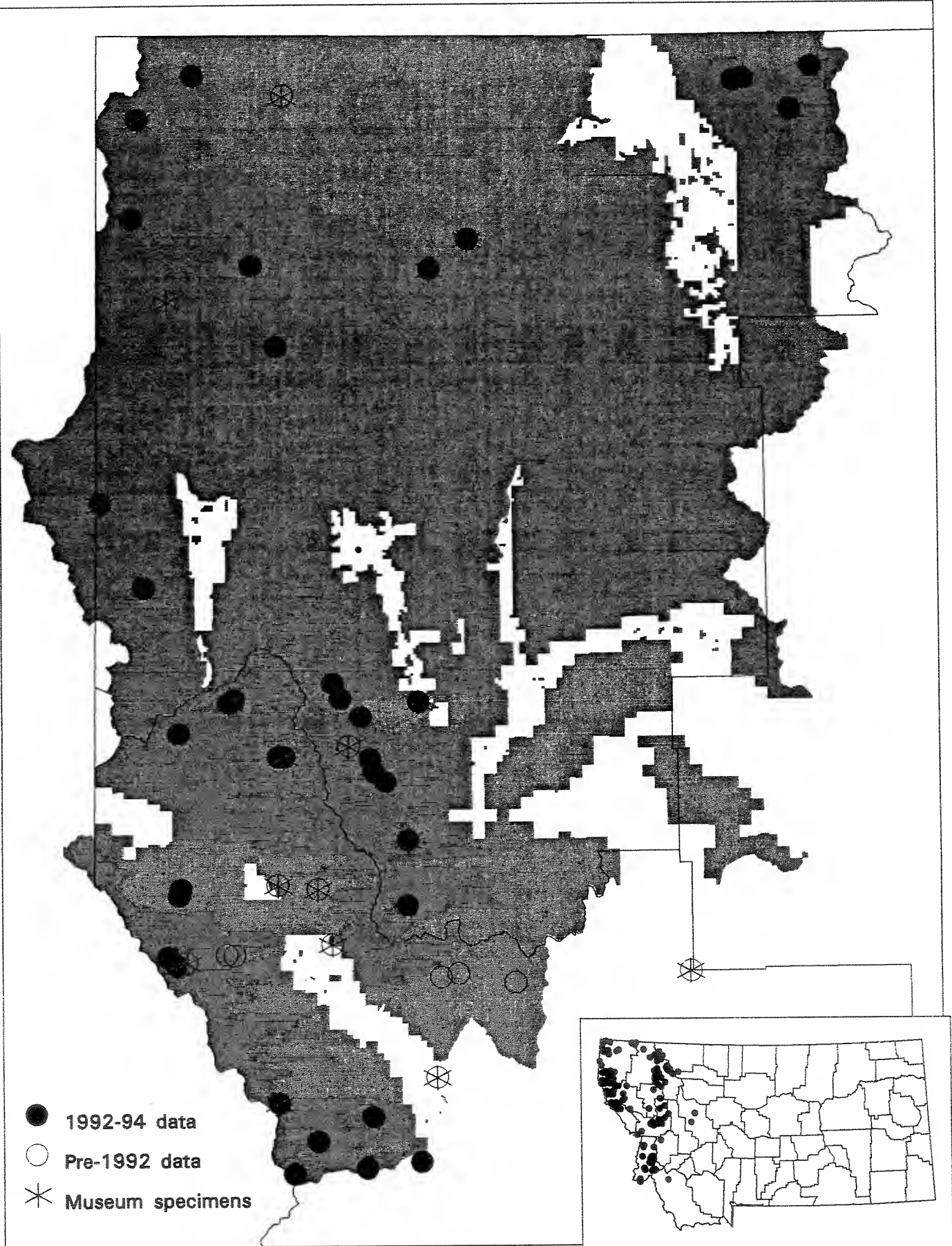
Surveying: During the spring, early summer and fall, adults may be seen in springs or seeps, waterfall spray zones, and at the edges of streams. They are most easily found on rainy nights when the air temperature exceeds 7° C. During the day they may be found by turning over rocks and other litter in and along wet areas; it may take 30 minutes or more to find a single individual during the day. Surveys may disturb or destroy habitat if not done carefully. During dry or cold periods adults move down into the rocks and may not be found (Cassirer et al. 1994).

Status: Coeur d'Alene salamanders are rare and locally distributed in suitable habitat on the KNF and elsewhere in northwestern Montana (Cassirer et al. 1994). They have been found in four of the six districts of the KNF (Cabinet, Three Rivers, Libby and Rexford) with 4 new localities being reported during this survey. The new localities were in seep-type habitats along Quartz Creek, Marten Creek, Little North Fork of Big Creek, and on the west side of Lake Koocanusa several miles north of Big Creek (Appendix 5). They are a Forest Service Sensitive Species and listed as a Species of Special Concern by the Montana Natural Heritage Program and Montana Department of Fish, Wildlife and Parks.

Montana Natural Heritage Program rank: G3Q S2.

Ascaphus truei -- Tailed Frog

Occurrences on or near the Kootenai National Forest, Montana



Tailed Frog (*Ascaphus truei*)

Description: Adults are gray or brown with gray, brown, or occasionally yellow blotches. The adult has a snout-vent length of 1.5-2". The outer toe of the hind foot is broader than the other toes, unlike other frogs and toads. Tailed frogs have no tympanum, while other frogs and toads have a tympanum. The male has a bulbous "tail" which acts as an external copulatory organ. Approximately 50 eggs are laid in rosary-like strings attached to the underside of rocks. The tadpole (up to 2" snout-vent length) is unique in that it has a large mouth modified into a sucker.

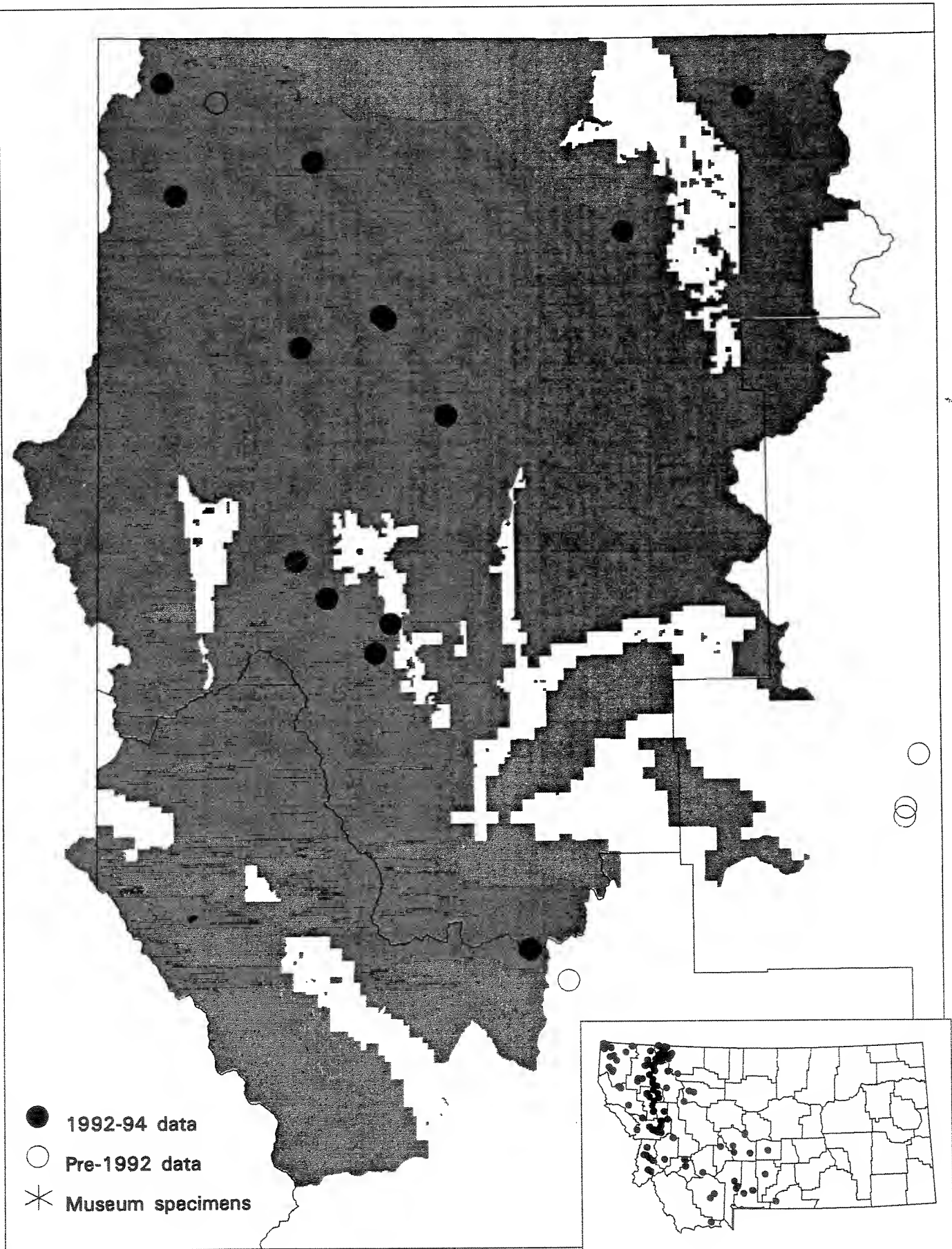
Habitat and Habits: Tailed frogs are found in and along small, swift, cold mountain streams. In the KNF, they were found in all districts and usually found with trout and sculpin species in fast-moving, clear water with temperatures rarely exceeding 54° F. The distribution of frogs within a stream was spotty and unpredictable. In a 20 mile stretch of Libby Creek, from 2850-4200 ft. elevation, frogs were found in 2 of 8 places when at least 100 meters of stream was checked. In Grave Creek in the Whitefish Range, they were found in 2 tributary streams of Grave Creek, both above 4000 ft. elevation, but were not found in Grave Creek itself. In Deep Creek, also in the Whitefish Range, the species was not found in seemingly ideal habitat, despite 6 checks along 1000 ft. of stream elevation. The highest elevations at which the Tailed frog were found included Divide Creek at 5400 ft. and the outlet of Big Therriault Lake at 5500 ft., both in the Whitefish Range. The lower limit was 2800 ft. along Libby Creek. Both the upper and lower limits are probably dictated more by the nature of the stream than by elevation itself. In the Cascade Mountains of Washington and Oregon, the Tailed frog appears to be very sensitive to siltation and frequently disappears in and downstream from clearcuts and water diversions (Bury, pers. comm.). Eggs are laid during the early summer and take approximately 4 weeks to hatch. Tadpoles take 1-4 years to metamorphose, depending on water temperature (Nussbaum et al. 1983; Metter 1967). Sexual maturity in Montana is attained at ages 6-7 (Daugherty and Sheldon 1982) which is the latest age for sexual maturity of any North American amphibian.

Surveying: Tadpoles are frequently found while fish shocking. They may also be found by turning over rocks in rapid water with a net held just downstream. Adults are best found by walking up streams starting shortly after dark.

Status: Apparently common in suitable habitat on the KNF and elsewhere in western Montana. Montana Natural Heritage Program rank: G5 S4

Bufo boreas -- Western Toad

Occurrences on or near the Kootenai National Forest, Montana



Western Toad (*Bufo boreas*)

Description: Adults have dry skin with small warts, and are gray, brown, or olive-green with a prominent white or yellowish line down the center of the back; very young transformed toads typically lack the dorsal line, and the warts are often red-brown in color. The adult has a snout-vent length of 2.5-5". This is the only toad in northwestern Montana but can be distinguished from toads in other areas of Montana by: 1) a cranial crest faint or absent; 2) oval parotoid glands; 3) two tubercles on the sole of the hind feet; and 3) a horizontal pupil. Tadpoles are typically jet black, while all the Montana frog species tadpoles are green or bronze. Eggs are laid in long, clear, double strings, and each has a black embryo.

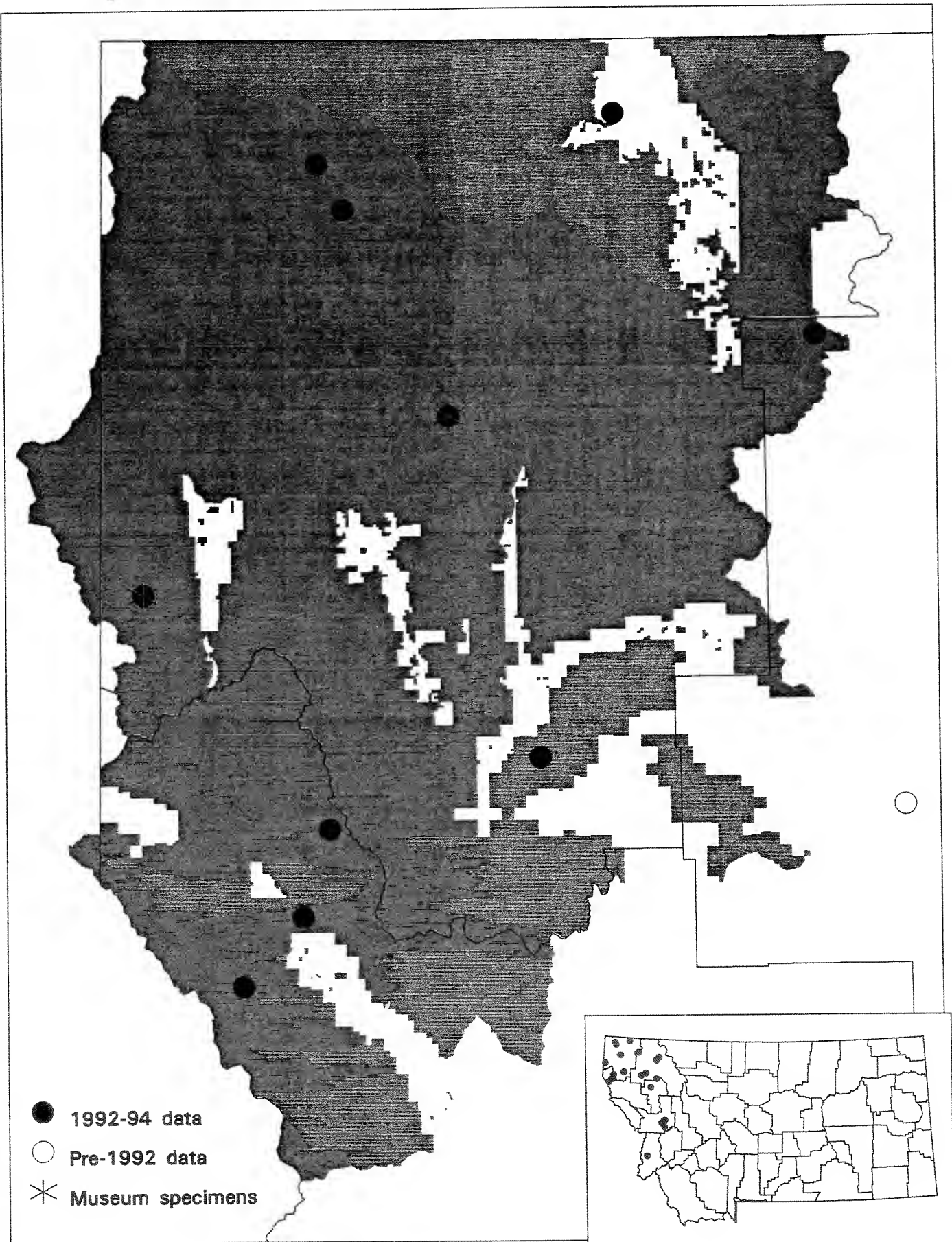
Habitat and Habits: Adults are largely terrestrial and found in a variety of habitats from valley bottoms to high elevations; they breed in lakes, ponds, and slow streams with a preference for shallow areas with mud bottoms. Breeding and egg laying in northwestern Montana usually takes place a month after snow-melt, from April at lower elevations to July at higher sites. We found eggs as early as 30 May 93 in a backwater of the Yaak River and as late as 20 June 94 at Blue Lake. Tadpoles were seen 30 May 93 at Horse lake ponds and as late as 10 September 94 with emerging toadlets at Vinal Lake. The earliest emerging toadlets were seen on 14 July 94 at Flower Lake. Tadpoles typically take 2-3 months to metamorphose in Montana, depending on water temperature (Black 1970b). At metamorphosis, hundreds of small toads, many with the tails still present, can be found on the shores of breeding ponds.

Surveying: Tadpoles are seen in ponds during the day and can be sampled with a dipnet. During the breeding season, adults may be seen in the water but otherwise they are found in more terrestrial habitats.

Status: Tadpoles and eggs of the Western toad were observed at only 10 sites during the 1993-94 survey in the KNF. No toad reproductive effort was seen in either the Cabinet or Fortine districts although some probably existed. Adults were encountered occasionally away from the breeding sites, but the paucity of reproductive effort is of concern. The US Fish and Wildlife Service has received a petition to list this species range-wide. Declines have recently been recorded in Yellowstone National Park (Peterson et al. 1992), Wyoming, and Colorado (Carey 1993). We would recommend that a monitoring program be set up for this species.

Montana Natural Heritage Program rank: G4 S4.

***Pseudacris regilla* -- Pacific Chorus Frog**
Occurrences on or near the Kootenai National Forest, Montana



Pacific Chorus Frog (*Pseudacris regilla*)

Description: Adults have a dark conspicuous eye line extending from the nostrils to the shoulder. Basic coloration is quite variable with the background color being green, brown, gray, reddish or bronze. Dark spots and stripes often occur on the head, back, and legs. Most have a dark Y or triangular shaped spot on the head between the eyes. The adult has a snout-vent length of 0.75-2". Males have a darker throat color and additional folds of skin in the throat region. This is the only frog in Montana with a combination of obvious toe pads and an eye stripe ending at the shoulder. The webbing on the hind feet is very reduced, covering only about 1/2 the length of the toes. Eggs are laid in small clusters of 10-70. The tadpoles are brown/bronze; the eyes are located near the margin of the head when viewed from above, unlike other frog tadpoles in western Montana which have the eyes on top of the head (except northern chorus frogs, *Pseudacris triseriata*, which also have the eyes at the margin of the head).

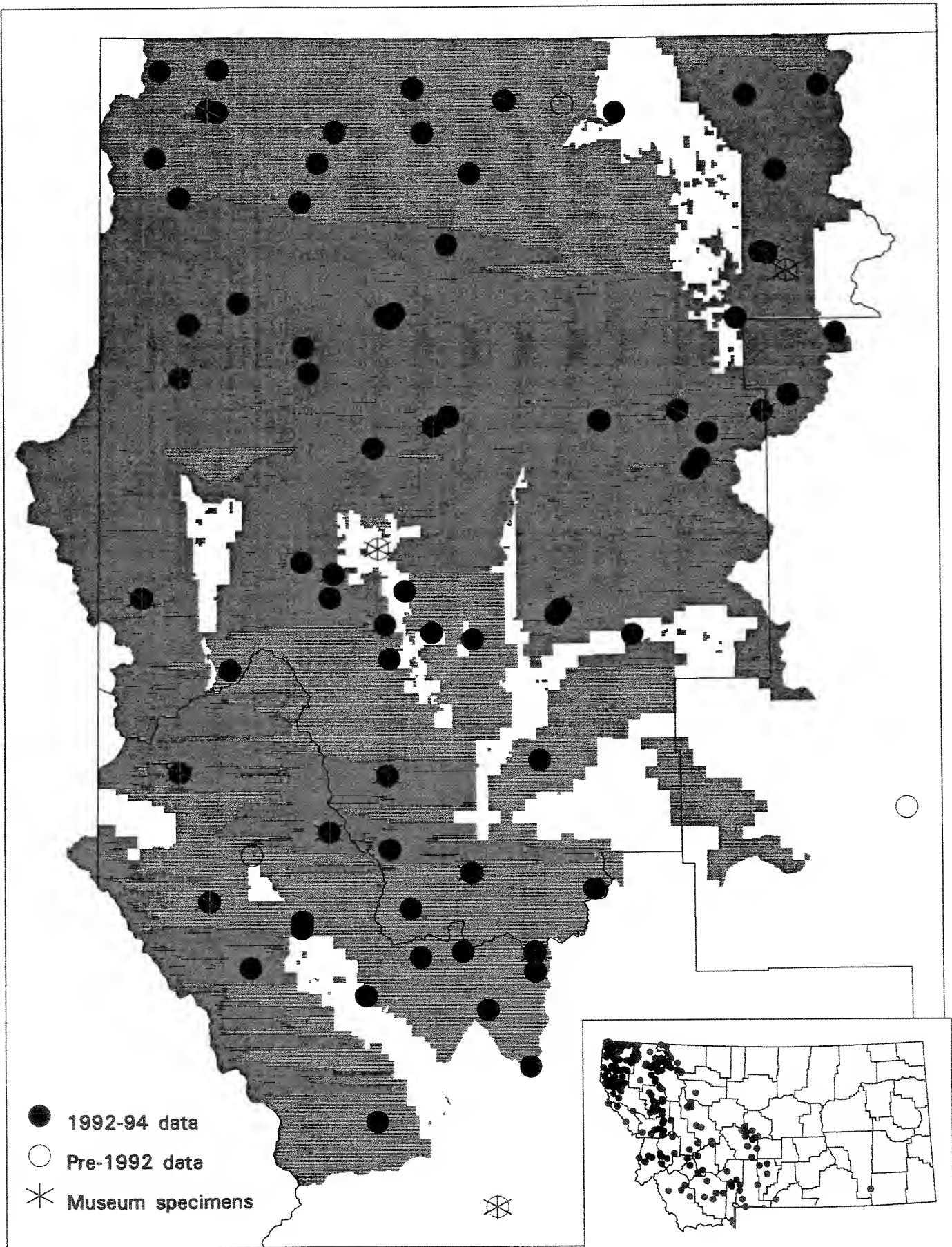
Habitat and Habits: Pacific chorus frogs are regularly found in the water only during the breeding period in spring. Their presence is obvious during this time due to their call which is given frequently at night and sporadically throughout the day. Following breeding they move into adjacent uplands and are rarely seen. In western Montana they breed in temporary ponds in lower elevation forests and in intermountain valleys shortly after snow-melt. During the 1993-94 survey, individuals of this species were observed or heard calling at 8 sites throughout the Forest. Tadpoles were found at 3 sites on 20 Aug 94 at a pond near Blue Lake, 30 July 93 at a pond near Trout Creek, and with froglets just emerging on 3 Aug 93 at Tuscor Hill Pond. In the Pacific Northwest, eggs hatch in 2-3 weeks and tadpoles take 2-2 1/2 months to metamorphose, depending on water temperature (Nussbaum et al. 1983). Transformed froglets grow quickly following emergence and in Oregon some were sexually mature at 1 year (Nussbaum et al. 1983).

Surveying: Adults may be found during the breeding season in and around ponds and lakes where they breed. Adults are usually heard before they are seen. Adults may call sporadically throughout the summer and fall, especially during wet, warm weather. Tadpoles are seen in the water during the day.

Status: Little is known about this species in Montana. Our surveys indicate very localized distribution over a large area. Whether this has always been the case, or whether the Pacific chorus frog is another declining Montana amphibian is currently unclear.

Montana Natural Heritage Program rank: G4 S4.

***Rana pretiosa* -- Spotted Frog**
Occurrences on or near the Kootenai National Forest, Montana



Spotted Frog (*Rana pretiosa*)

Description: Adults are dark to light brown, gray, or olive green with dark spots (frequently with lighter centers) found on the back, sides and legs. The number and pattern of spotting is quite variable. The back and sides are often covered with small bumps. The underside of the legs is bright red, salmon, or orange; this bright color may extend up to the chin or be replaced by a light, mottled gray on the chin, chest, and/or belly. In younger subadults, bright leg color is often lacking and instead a light, lemon-colored wash is present. In these subadults there is often a dark mask present, with a light jaw stripe extending to the shoulder; both the mask and jaw stripe may be less obvious in larger, older animals. The adult has a snout-vent length of 2-4". The bright colored pigment on the undersides of the legs of adults distinguish this species from all other frogs in Montana. Younger individuals, without bright legs, may be distinguished by a combination of: 1) dorsal spots usually present but not surrounded by light-colored halos; 2) dorsolateral folds present; 3) toes without pads at the tips; 4) light, lemon-colored wash on the undersides of the legs; and 5) pale gray, not white belly. Eggs are laid in large, globular masses of 150-500 at the surface of the water. The tadpoles are dark green on top with some gold flecking whereas the underside has an iridescent bronze color. Total length of tadpoles may reach 3"; the eyes are located on top of the head.

Habitat and Habits: Spotted frogs are regularly found at the water's edge in forest habitats.

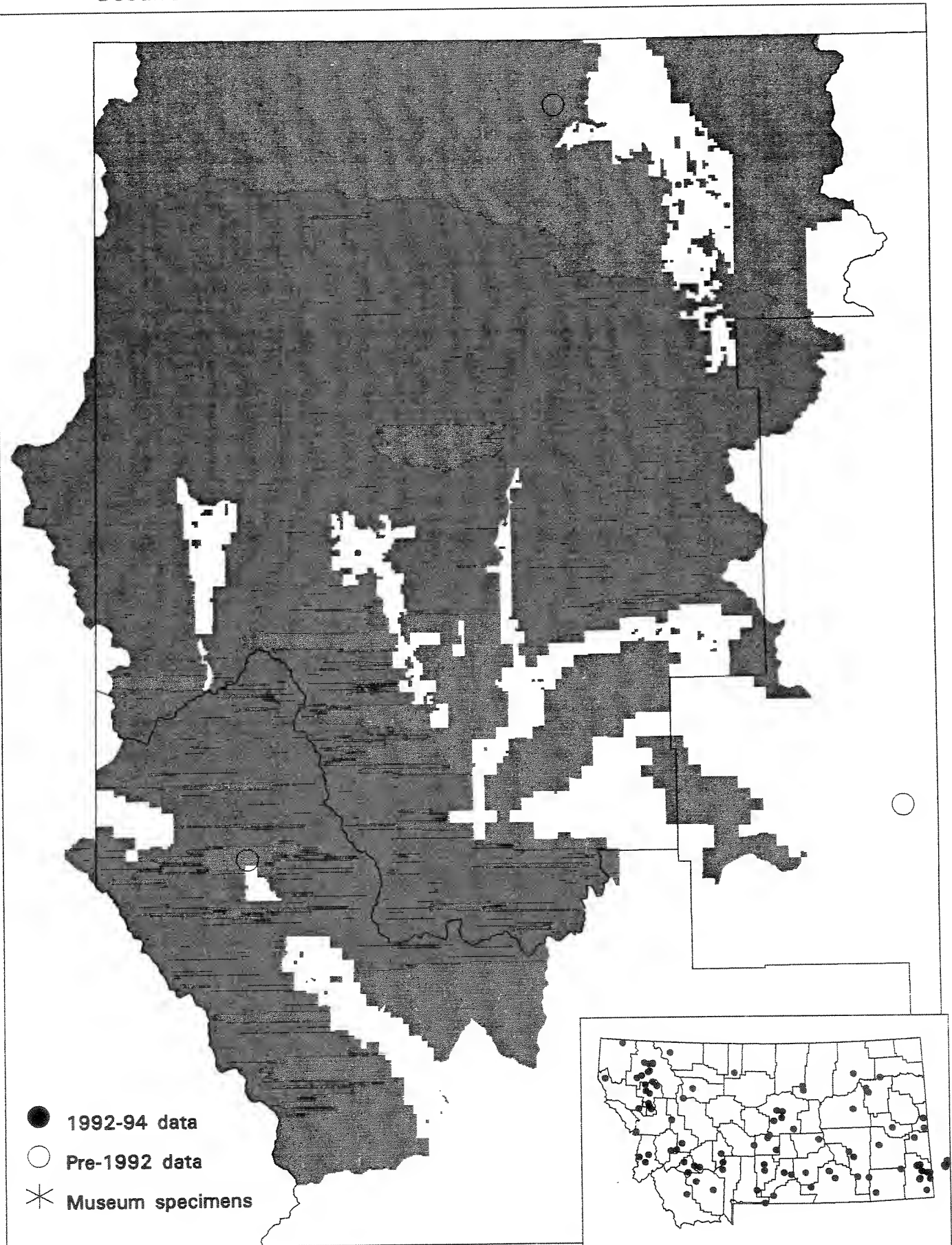
Wetlands in or near treeline, are also used, but populations are uncommon in the large, open, inter-mountain valleys. The Spotted frog was commonly found on all districts of the KNF from the valley floor at 2350 ft. to over 6180 ft elevations in the Cabinet, Three Rivers and Fortine districts. Individuals were found in every type of wetland habitat although numbers varied widely from 1-35 or more at a site. Breeding takes place in lakes, ponds (temporary and permanent), springs, and occasionally backwaters or beaver ponds in streams. All the egg masses in a particular pond are often found in the same location and at the margin of the pond. Because of their location, the eggs are susceptible to drying up if pond levels recede substantially before tadpoles hatch out. Such was the case in the summer of 1994 in the KNF where extensive egg mortality was observed in at least five instances. Eggs were found as early as 28 April 94 at a pond near Bull Lake and as late as 29 May 93 at Frog Lake; however, since tadpoles were also present on 28 April 94, some eggs must have been laid as early as 15 April 94. Tadpoles were seen from 28 April 94 through 12 August 94. Recently transformed froglets were found in numbers along Freezout Creek on 1 Aug 93. Eggs hatch in 2-3 weeks and tadpoles take 2-14 months to metamorphose, depending on water temperature (Nussbaum et al. 1983, Turner 1958). Young and adult frogs often disperse into marsh and forest habitats, but are not usually found far from open water.

Surveying: Both tadpoles and adults can be seen in and along the water during the day and can be sampled with a dipnet; adults may also be captured by hand.

Status: The most common frog on the KNF and elsewhere in western Montana. The Spotted frog in Montana is currently a U.S. Fish and Wildlife Service Category 2 Candidate species; elsewhere in its range it is listed as a C-1, with Threatened/Endangered status warranted but precluded by work on higher priority species (U.S. Fish and Wildlife Service 1993).

Significant declines are known from the southern end of the range (Nevada, southern Idaho,

Rana pipiens -- Northern Leopard Frog
Occurrences on or near the Kootenai National Forest, Montana



Utah). While significant declines are also apparent in coastal Washington, Oregon, and California, recent (as yet unpublished) research indicates that those populations are actually a different species.

Montana Natural Heritage Program rank: G4 S4.

Leopard Frog (*Rana pipiens*)

Description: Adults are brown or green with large, dark spots surrounded by light-colored halos on the sides and back. The dorso-lateral folds are usually lighter in color than the surrounding background. The under-side is typically white, but may be cream-colored or yellowish. The adult has a snout-vent length of 2-5". Newly transformed froglets may lack spots.

Habitat and Habits: Leopard frogs are found in or near water in non-forest habitats. Typically the vegetation is dense, e.g., a dense, sedge wet-meadow or cattail marsh. Breeding takes place in lakes, ponds (temporary and permanent), springs, and occasionally backwaters or beaver ponds in streams. Eggs are laid in 2-5" globular masses composed of hundreds to thousands of eggs (Hammerson 1982a, Nussbaum et al. 1983). In Colorado, eggs hatch in 4-15 days and tadpoles take 8-15 weeks to metamorphose, depending on water temperature (Hammerson 1982a).

Surveying: Both tadpoles and adults are seen in and along the water during the day and can be sampled with a dipnet; adults may also be captured by hand..

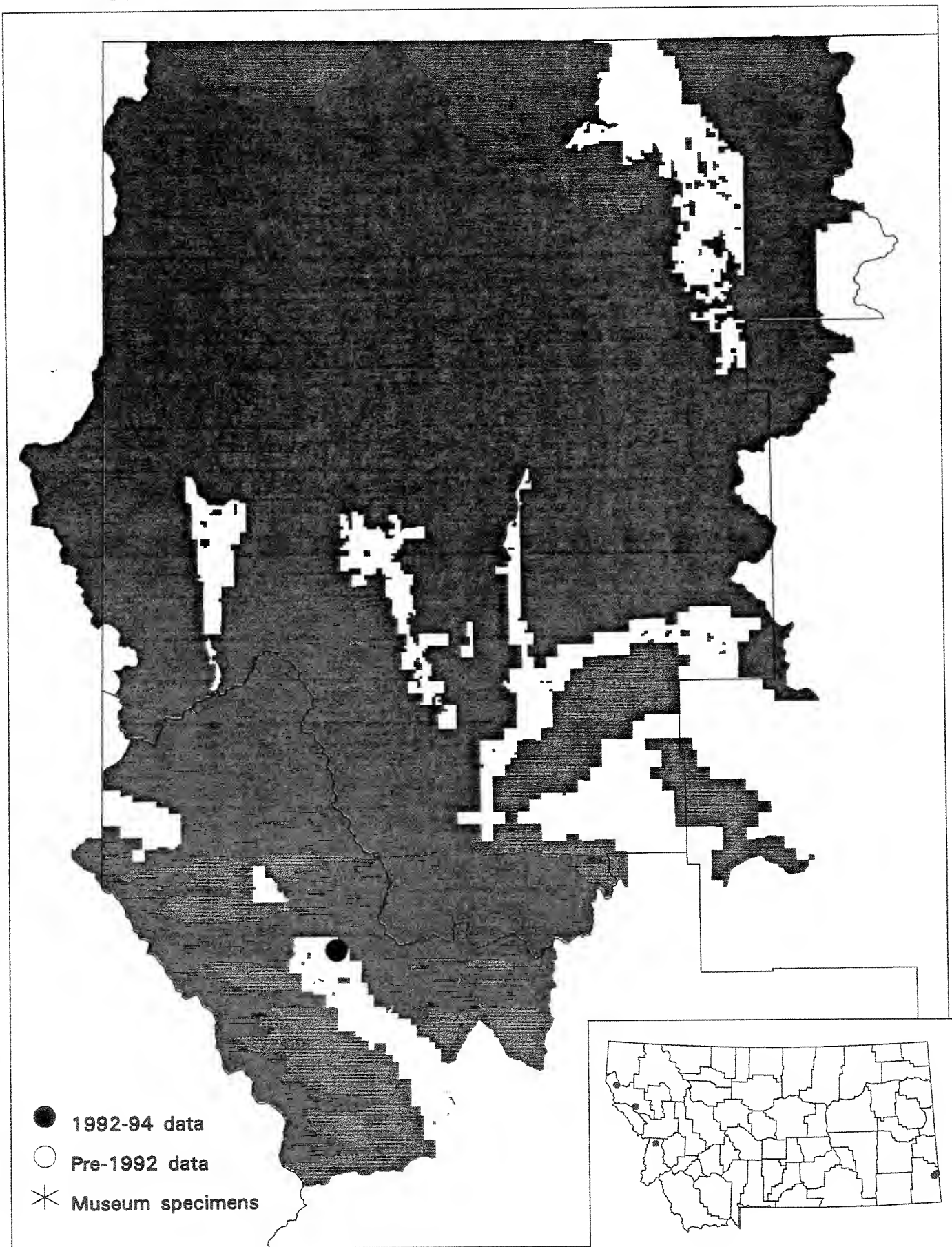
Status: Historically, the Leopard frog was widespread in Montana but it now appears to have been extirpated throughout much of the western part of the state. Re-surveys of 12 known historical sites west of the Continental Divide during the past two summers have failed to reveal a single individual. It is still common and wide-spread in the southeast corner of the state, but its status is uncertain in central and northeast Montana. It appears that only localized populations are present on the western edge of the plains. There are two historical records within the KNF, one north of Rexford and one north of Noxon. Although it was impossible to pinpoint the exact localities for these records, wetlands in the immediate area were surveyed this past summer and Leopard frogs were not found. There are a number of large open marsh areas at lower elevations, such as in the Lost Prairie-Pleasant Valley area or along the Bull River and Clark Fork which appear to be ideal habitat and may have contained, or currently do contain, Leopard frog populations. In many other areas in North America where the Leopard frog was common a few decades ago, it is now gone.

Widespread extirpations are known from Alberta (Koonz 1993), Wyoming, Colorado (Hammerson 1982b, Corn and Fogelman 1984), Idaho (Groves and Peterson 1992), Washington, and Oregon (Leonard et al. 1993). Bullfrog and fish introductions, acid rain, ozone depletion, immune system suppression, and "Postmetamorphic Death Syndrome" have all been suggested as causes for frog extirpations in other areas (Corn and Fogelman 1984, Hammerson 1982b, Carey 1993, Leonard et al. 1993).

Montana Natural Heritage Program rank: G4 S4.

Rana catesbeiana -- Bullfrog

Occurrences on or near the Kootenai National Forest, Montana



Bullfrog (*Rana catesbeiana*)

Description: The largest of North American frogs, adult Bullfrogs may reach 8 inches in snout-vent length. The skin is smooth. Adults are usually pale to dark green or brownish green with darker spots or blotches. There are a series of black bands across the legs. The underside is cream to yellowish with gray mottling. No dorso-lateral folds are present, however there is a prominent ridge running from the eye over the tympanum to the shoulder. Males have extensive yellow pigment on the underside, especially in the throat region, and swollen thumbs. The diameter of the tympanum is larger than the diameter of the eye in males but about the same size in females. Egg masses consist of thousands of eggs and may reach several feet across. Tadpoles may reach 4.5" in total length and are olive green with numerous black spots dorsally. The belly is white to creamy with varying amounts of dark mottling. Tadpoles usually take two or more years to metamorphose.

Habitat and Habits: Bullfrogs are the most aquatic of Montana's amphibians, rarely being seen far from the water's edge and usually in the water. They are associated with larger bodies of quiet water such as ponds, lakes or backwaters of streams, usually with extensive emergent vegetation such as cattails or reeds. They emerge in the spring only after air and water temperatures have warmed considerably and insect populations are beginning to proliferate. Breeding takes place in June when males attract females to their territory by a series of loud brr-umps. The large mass of eggs tend to float on the surface when first laid, but sink into the water prior to hatching (Hammerson 1982a, Nussbaum et al. 1983). Tadpoles overwinter in the Pacific Northwest, transforming during their second summer (Nussbaum et al. 1983, Leonard et al. 1993). The bullfrog is a voracious feeder, eating anything smaller than itself, including ducklings, fish, mice, frogs, and small turtles. Bullfrogs have been implicated in extirpations of native frogs and turtles, and declines in waterfowl production (Hammerson 1982b, Leonard et al. 1993).

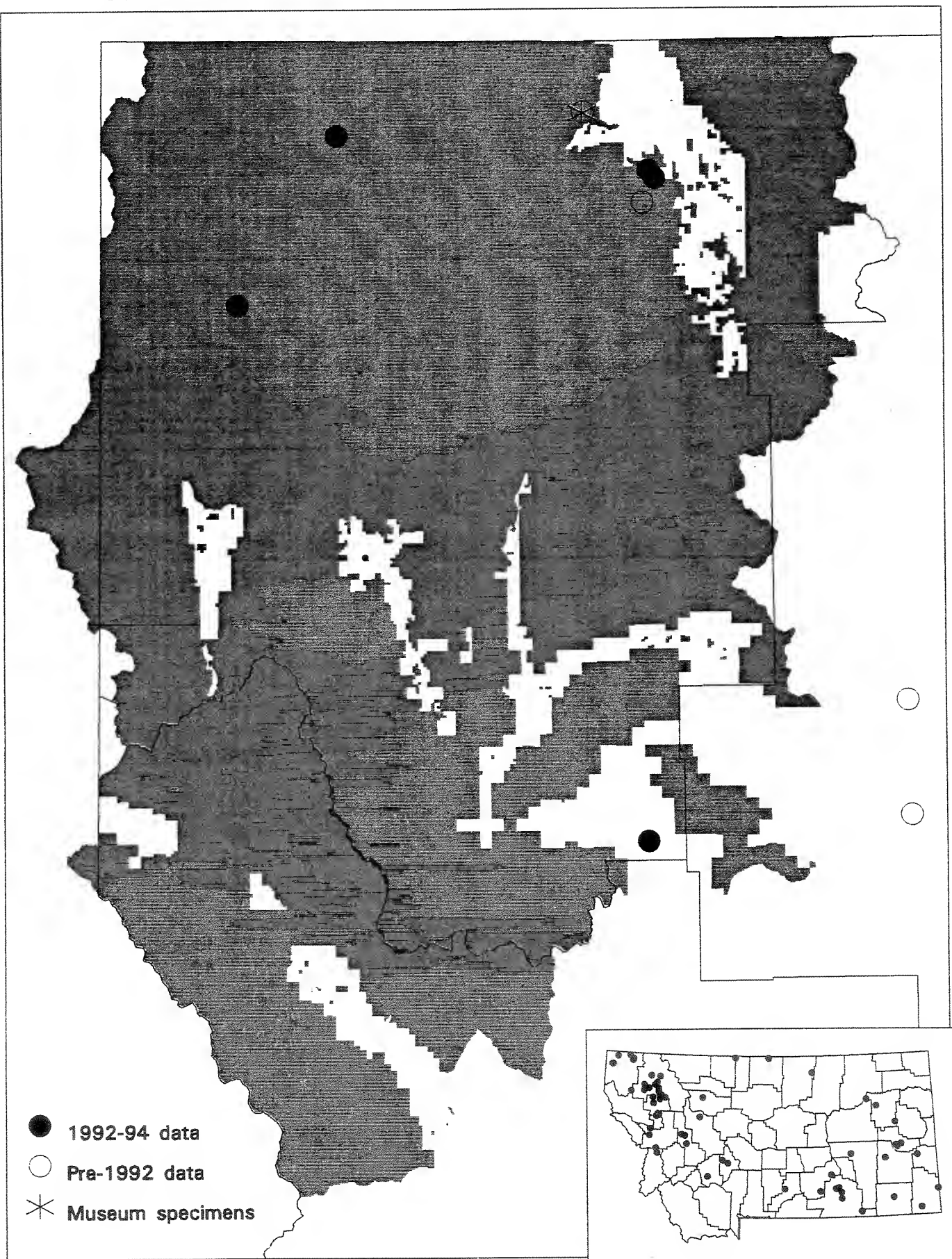
Surveying: Both tadpoles and adults can be sampled by using a dipnet. Capture success of adults is enhanced by night sampling using a headlamp, as they are very wary and do not allow close approach during the day.

Status: Bullfrogs are native to the eastern and central U.S., and have been introduced to the western states. They were introduced into western Montana prior to the 1960's. Viable populations are scattered along the Flathead and Clark Fork Rivers as well as in the Bitterroot Valley and possibly other localities. There is one known population on private land in the Cabinet district of the KNF.

Montana Natural Heritage Program rank: G5 SE4

Chrysemys picta -- Painted Turtle

Occurrences on or near the Kootenai National Forest, Montana



Painted Turtle (*Chrysemys picta*).

Description: Adult Painted turtles have a relatively flat dorsal shell, or carapace, the length of which varies from 5-8". The background color of the shell ranges from dark brown to green, with a narrow yellow line extending down the center. A series of short, irregular yellow lines are often scattered across the shell, and a red and black border forms the outer edge. The ventral shell, or plastron, is red with a centrally-located yellow and black blotch whose edges flare out along the border of the scutes. The edge of the plastron also has a series of black and yellow blotches. Two yellow stripes run along the sides of the head and neck. Sexes are distinguished by the longer tail and longer front claws of the male. The white, soft-shelled eggs are about 1" in diameter and number 12-20 per clutch. Coloration on young Painted turtles is more vibrant and the shell is not quite as flattened.

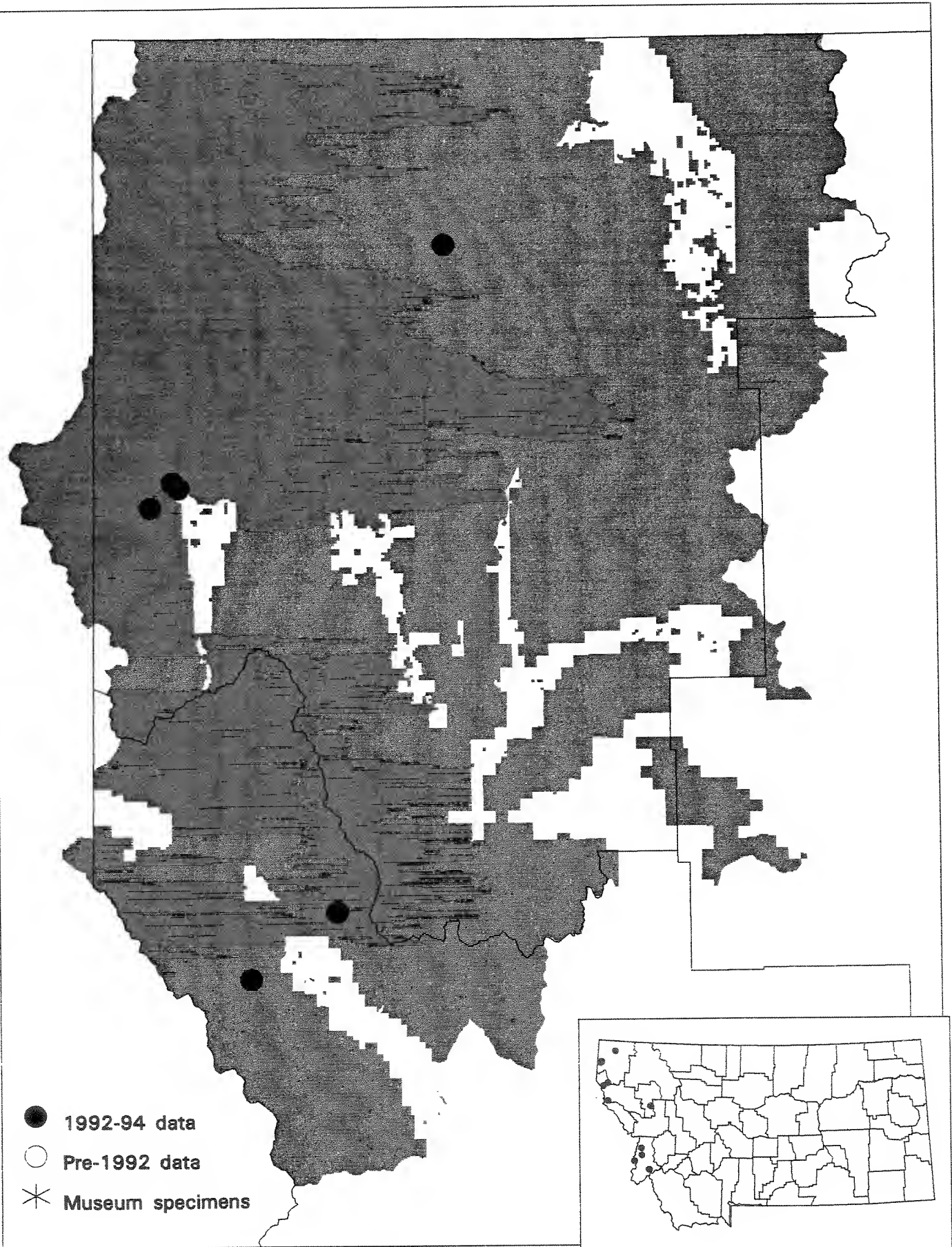
Habitat and Habits: Painted turtles are rarely seen far from ponds, lakes, or the slow-moving water of streams. They are primarily herbivorous, feeding on a variety of aquatic plants, but will also scavenge on animal remains. Eggs are usually laid within 10-20 feet of the water's edge, although some individuals will travel greater distances seeking a suitable site. During egg-laying, the female excavates a hole with her hind feet and deposits the eggs, which are then covered by several inches of dirt. Predation on turtle eggs by raccoons, skunks, etc. is common, and shell fragments are evidence of such activity. Female Painted turtles may lay more than one clutch of eggs each summer. It is suspected that the young borne of late egg depositions overwinter in the shell and do not emerge until the following spring. Once females lay their eggs, they return to the pond, where they can often be seen basking on logs or rocks along with juveniles and males. Painted turtles sexually mature at 3-4 years of age and may live to be 10 years or older (Stebbins 1985).

Surveying: Although various turtle traps can be used for surveys, visual identification is suitable since there are no other turtle species in Western Montana to confuse it with. A pair of binoculars is helpful and surveys should be done on warm sunny days. During cold or cloudy weather, turtles tend to remain underwater for long periods and can be missed on just a walk-through survey.

Status: Painted turtles are quite common throughout western Montana at lower elevations. They are thought to be present in all districts of the KNF, but were seen in only four districts during the 1993-94 survey. Thirty-three turtles were counted at one time in Turtle Lake near Eureka but in most instances only one or two individuals were seen at a site. Since Painted turtles occupy a different food chain than amphibians and lay their eggs on land rather than in the water, they face a different set of environmental factors in regulating their populations.

Montana Natural Heritage Program Rank: G5 S5.

***Elgaria coerulea* -- Northern Alligator Lizard**
Occurrences on or near the Kootenai National Forest, Montana



Northern Alligator Lizard (*Elgaria coerulea*).

Description: One of two lizard species in western Montana, the Northern alligator lizard is a member of the Anguidae family. The family is characterized by having elongate bodies, relatively short limbs and a lateral skin fold on each side of the body. Adult Northern alligator lizards range from 3.5 - 5.5" in snout-vent length. The head is broader and more triangular in males than females. The eyes have considerable black pigment. Although most species of *Elgaria* have distinct black and brown bands running across the dorsal surface, the bands are broken and indistinct in the Montana specimens. The ventral surface has a series of longitudinal dark lines located at the scale junctions. Females give birth to 2-15 living young (Stebbins 1985), which have a more distinct banding pattern on the dorsal surface than the adults.

Habitat and Habits: The Alligator lizard is found in a variety of habitats, including under logs in dry open forests, near streams in moist, cool forests, and around buildings. They have been seen in rocky, open Ponderosa forests in the Three Rivers and Cabinet Districts, and in the riparian zone of Big Creek on the Rexford District. Little is known about reproduction in this part of their range; it is assumed that they mate in spring and that the young are born in late summer. They are primarily carnivorous, feeding on a variety of small insects and other invertebrates.

Surveying: Although various lizard traps and mark/recapture techniques have been designed, probably the best approach is to visit known sites, especially on warm, sunny days, and allow considerable time just to sit and watch the area for activity.

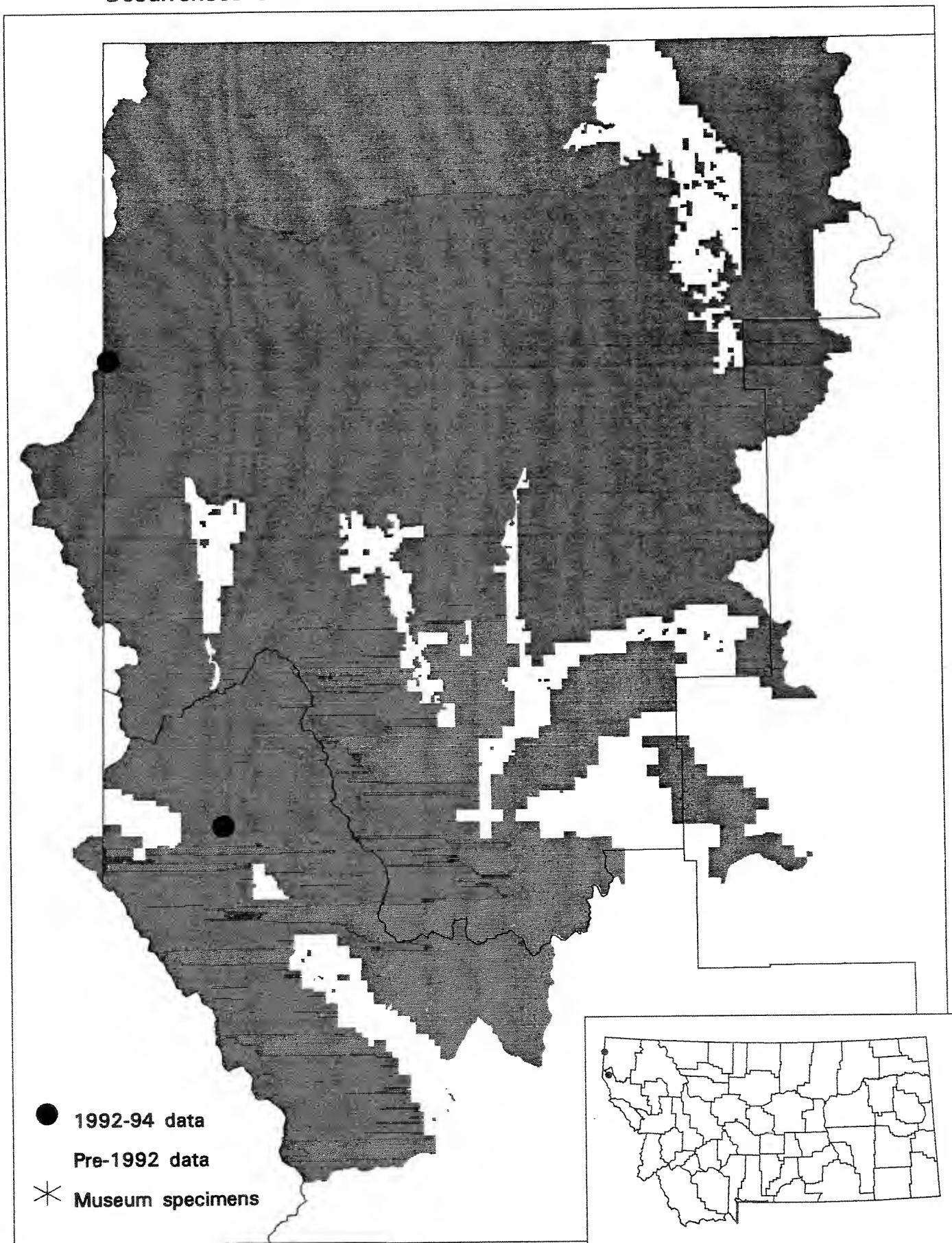
Status: Sight records exist for the Cabinet, Three Rivers, and Rexford districts of the KNF.

Given the paucity of sightings, it is recommended that all sight records be kept on file.

Montana Natural Heritage Program Rank: G5 S3.

Eumeces skiltonianus -- Western Skink

Occurrences on or near the Kootenai National Forest, Montana



Western Skink (*Eumeces skiltonianus*).

Description: The second of western Montana's two lizard species, the Western skink is smaller (2 - 3.5" snout-vent length) than the Alligator lizard and is characterized by round, shiny scales and an elongate head. The color pattern in adults consists of a broad, brown stripe edged with black, running lengthwise down the back. The brown band is paralleled by a light and then dark band on each side of the body. The stripes extend onto the head but fade on the tail. The Western skink is thought to lay 2-6 eggs (Stebbins 1985), but the exact number and dates of oviposition are not known in this area. In young animals, the tail is bright blue but the color fades with age. The Western skink is in the Scincidae family.

Habitat and Habits: Western skinks are found in habitats similar to those of the Alligator lizard, i.e. cool, moist forests, often along streams. They may also be seen sunning themselves in open areas. Although diurnal in habits, skinks are secretive and not often seen. Where they have been studied, females guard the eggs until hatching.

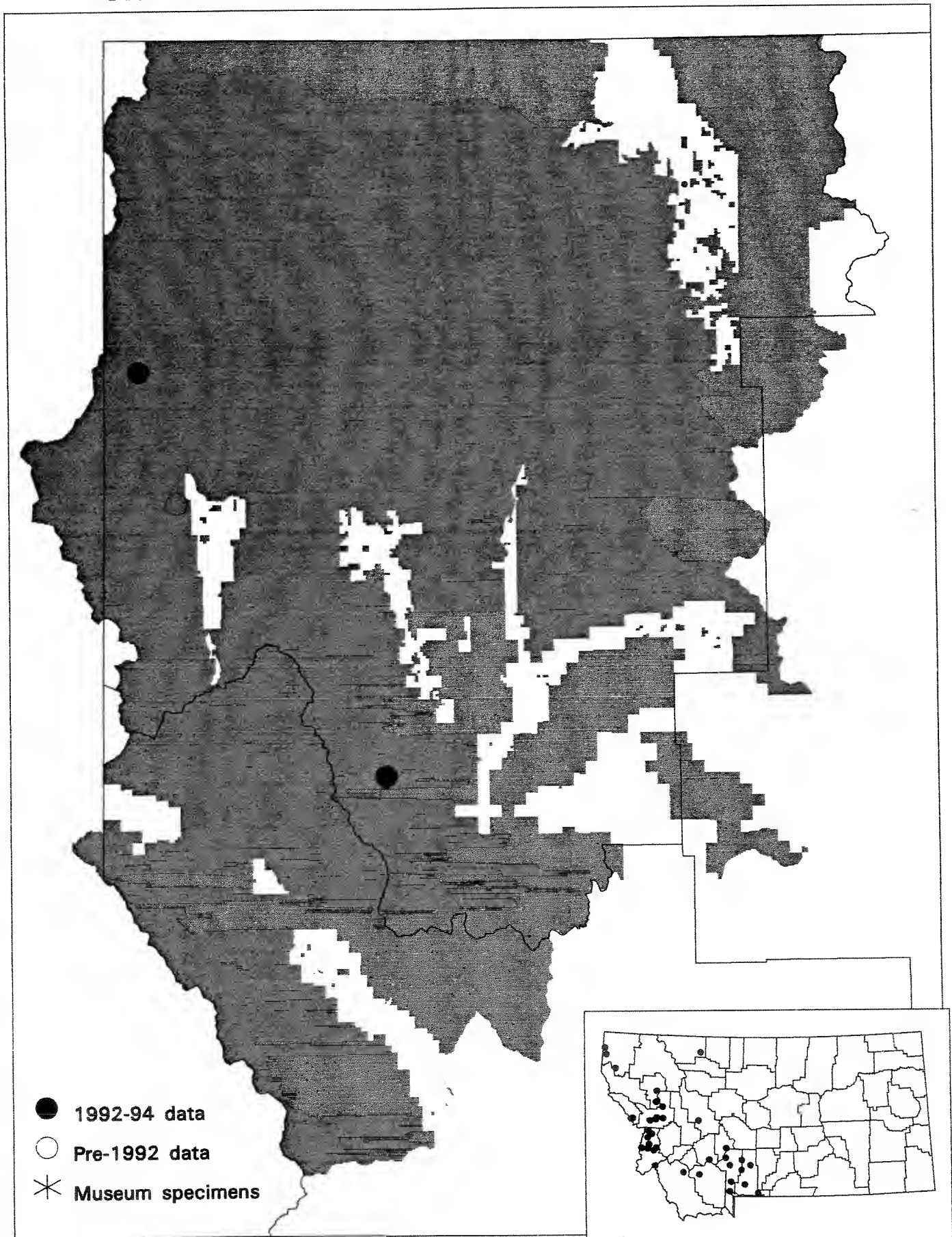
Surveying: Large drop cans or lizard traps can be used for sampling but like the Alligator lizard, the best opportunity for seeing skinks is probably to visit known sites during warm sunny days and allow considerable observation time.

Status: Distribution in the KNF is unknown. Only two sightings of skinks have been reported in the Forest including one during this survey at the Kootenai River on the Idaho border. It is recommended that all sightings be kept on record.

Montana Natural Heritage Program Rank: G5 S3.

Charina bottae -- Rubber Boa

Occurrences on or near the Kootenai National Forest, Montana



Rubber Boa (*Charina bottae*).

Description: The Rubber boa looks and feels like rubber, hence its name. It is a small snake (12-28" snout-vent length), stout, and uniformly-colored from brown to green on the dorsal side. The ventral surface is cream to tan in color. The scales are small and smooth, except for those on the head which are enlarged. The tail is short and blunt. Two to eight young are born alive. Young Rubber boas are more tan (or even pinkish) than the adults on both the dorsal and ventral surfaces.

Habitat and Habits: The Rubber boa is a secretive snake, usually found under logs and rocks in either moist or dry forest habitats. Occasionally they are seen sunning themselves on roads, trails or in open areas. Rarely are they seen in marsh or bog situations. They will constrict small prey (i.e. shrews, small mice, salamanders, etc.) but also feed on various insects and invertebrates. The young are born in late summer or early fall.

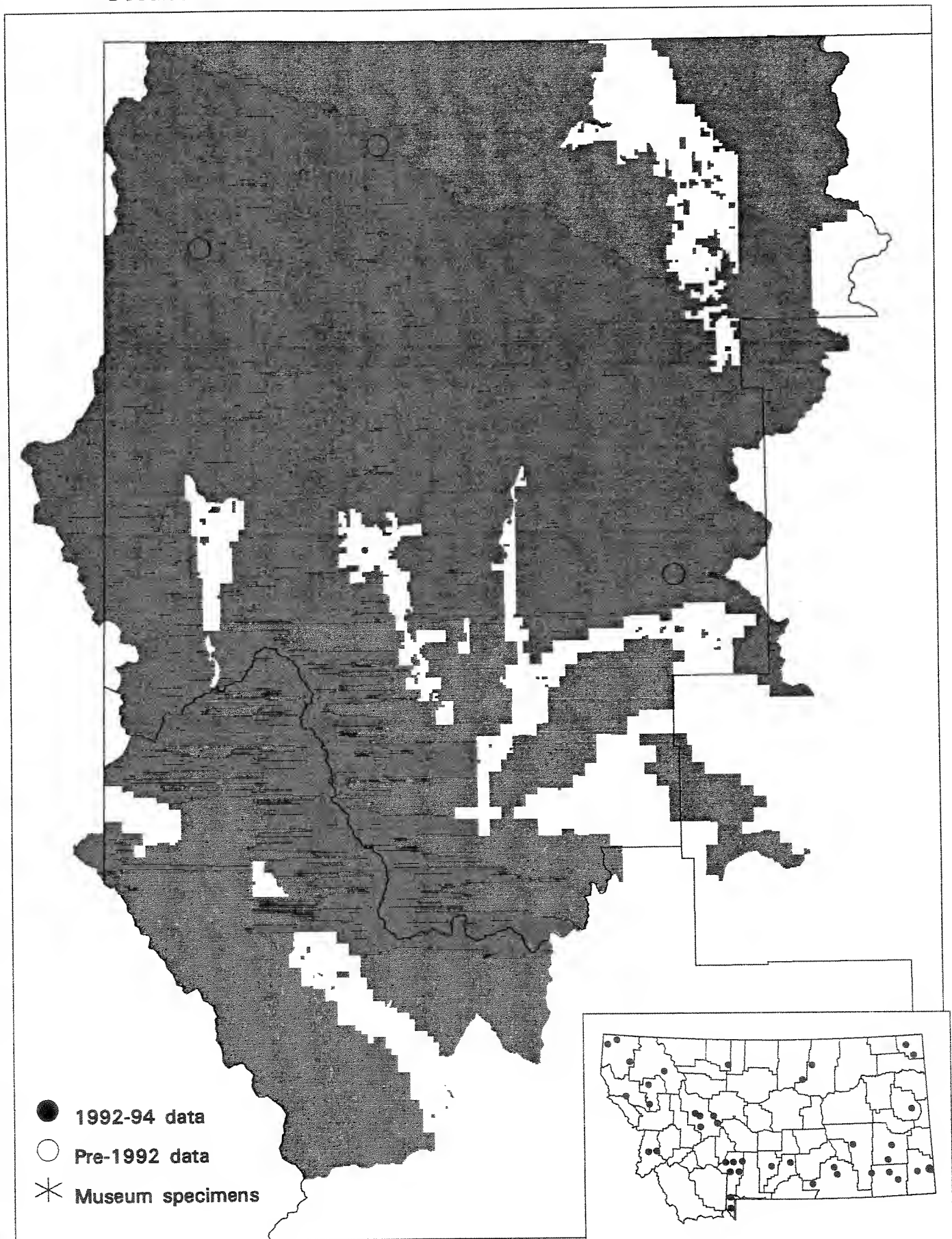
Surveying: There are no practical methods for surveying other than systematic searches of a given area rolling over rocks, logs, etc. Previous sightings are of value in locating general areas of activity.

Status: Sightings of Rubber boas are infrequent but they were seen in the Libby and Three Rivers districts during this survey. They probably occur throughout the KNF at low to mid-elevations.

Montana Natural Heritage Program Rank: G5 S4.

Coluber constrictor -- Racer

Occurrences on or near the Kootenai National Forest, Montana



Racer (*Coluber constrictor*).

Description: A slender, but moderately long snake, the Racer ranges from 20-65 inches in total length. Adult coloration is uniform across the dorsal side but it can vary from a greenish-gray to brown or blue. The ventral side is whitish to pale yellow, the latter color extending onto the upper labials and nasal region of the head. The eyes are relatively large. The scales are smooth and the anal plate is divided. A clutch of 3-7 eggs is laid in the summer (Stebbins 1985). Young snakes (up to about 20") have a much different coloration than the adults consisting of a series of dorsal brown blotches edged with black which run the length of the animal. A row of blotches is also found on each side of the animal extending onto the ventral side.

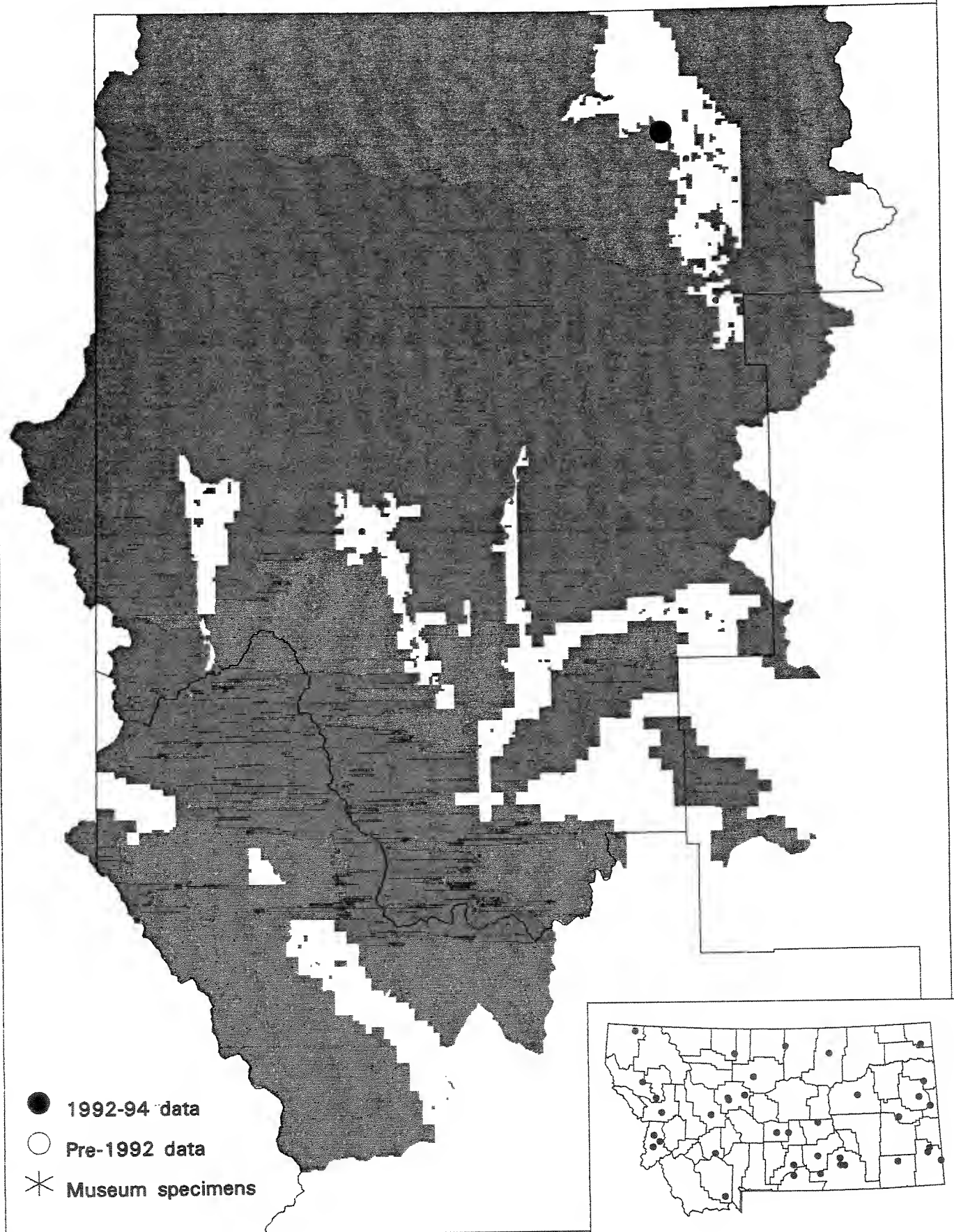
Habitat and Habits: The Racer is associated with more open habitats either in shortgrass or forested areas. It preys on mice, frogs, insects, and the like.

Surveying: Walk-through surveys coupled with mark-recapture methods offer the best opportunity for determining population status. Rolling over rocks and logs and timing surveys for warm sunny days enhances sampling success.

Status: The Racer was not seen in this survey, however several records are given in Davis (1963). Given its likely habitat in northwestern Montana of dry, open, low elevation sites, and our concentration of surveys in wet areas, little can be said about its current status.

Montana Natural Heritage Program Rank: G5 S5.

Pituophis melanoleucus -- Gopher Snake
Occurrences on or near the Kootenai National Forest, Montana



Gopher snake (*Pituophis melanoleucus*).

Description: Montana's largest snake, adult Gopher snakes (also called Bullsnares or Pine snakes) can reach a total length of 7 feet, but most specimens we have seen in western Montana ranged between 3-5 feet. They are readily recognized by a series of large black to brown blotches which run down the back, and another series along the sides. The blotches, which are set on a yellow background, become more spaced out towards the tail. The dorsal scales are keeled. There is usually a black band on the head located in front of and extending below the eyes. The ventral coloration is yellow to white, often spotted with black, and the anal plate is undivided. Young Gopher snakes can be confused with young Racers which also have the alternating black blotches, however the Racers have a black border on the dark blotches, the scales are not keeled, and the anal plate is divided. Gopher snakes lay between 2-24 eggs during the summer months (Hammerson 1982a), and the young resemble the adults in coloration.

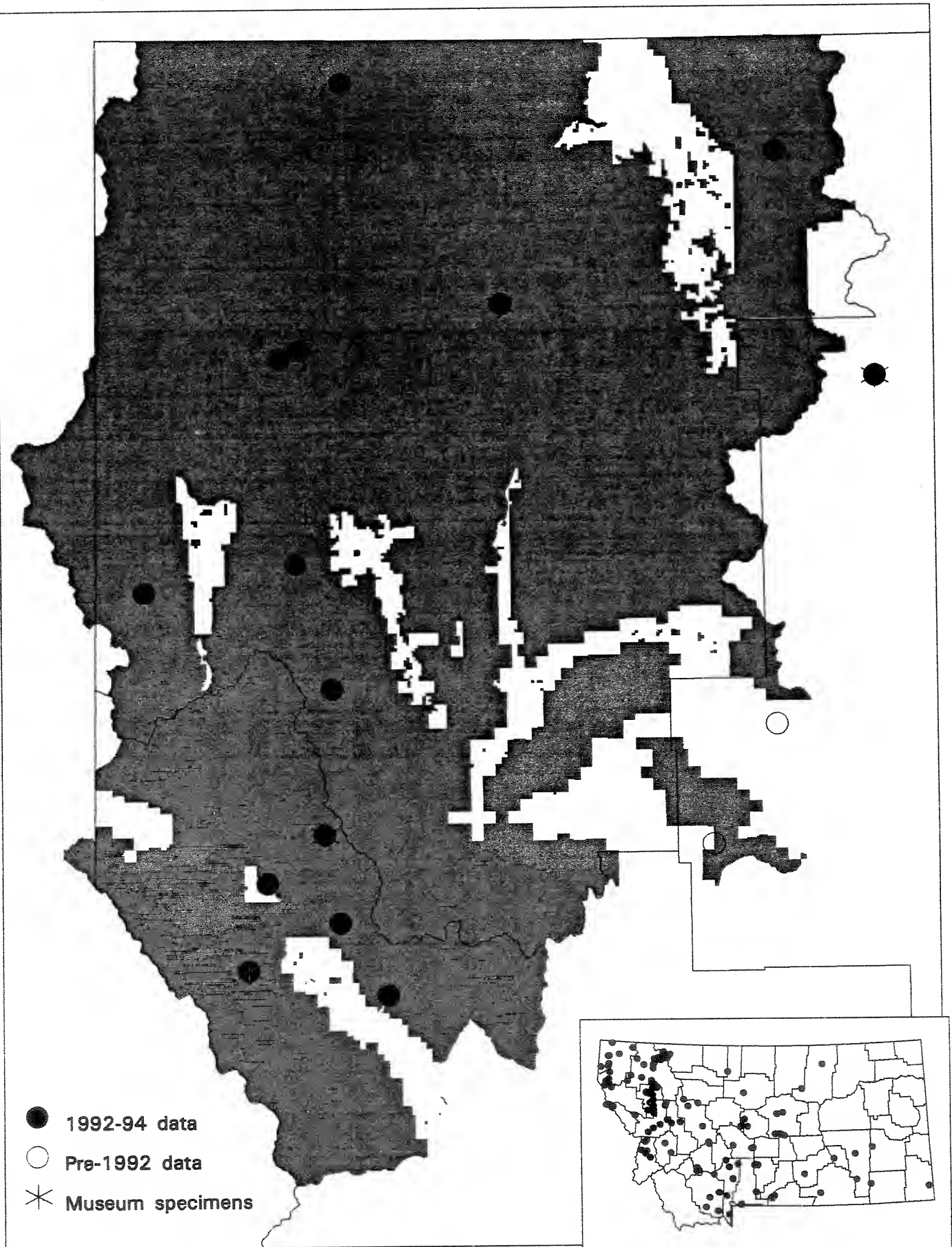
Habitat and Habits: Gopher snakes are associated with more dry, arid habitats including open pine forests. They feed on rodents, rabbits and ground dwelling birds, and to a lesser extent on frogs, toads, etc., found around stock ponds and other wetlands. They have a habit of hissing and vibrating the tail when alarmed, often sounding like rattlesnakes. They occasionally climb trees, hence the common name "Pine snake."

Surveying: Walk-through surveys, done on a regular basis in warm, sunny weather probably give the best results. Rocks and logs should be overturned (and replaced) when surveying. Data can be enhanced by mark-recapture techniques.

Status: Gopher snakes are known only from a single record within the KNF boundaries, on the south side of Eureka; this record may represent an introduction. However, the more dry and arid portions of the Fisher River and Fortine districts are capable of having Gopher snakes. They are quite common in the western half of the Flathead Reservation. It is recommended that any valid sighting be kept on file.

Montana Natural Heritage Program Rank: G5 S5.

Thamnophis elegans -- Western Terrestrial Garter Snake
Occurrences on or near the Kootenai National Forest, Montana



Western terrestrial garter snake (*Thamnophis elegans*).

Description: Adult Western terrestrial (or Wandering) garter snakes are smaller in body size than the Common garter snake, their snout-vent length varying from 16-28". Three yellow longitudinal stripes are present (one dorsal, two lateral), but the dorsal stripe is much narrower than that of the Common garter snake. A distinctive feature of the Western terrestrial garter is a series of alternating black spots which run the length of the body between, and somewhat on, the yellow stripes. The background color between the stripes tends to be more gray compared to the dark brown found in the Common garter snake. The ventral surface has a series of dark black/brown blotches which may cover most of the surface. The dorsal scales are keeled and there are normally 8 upper labial scales. Females give birth to 4-19 young during the summer (Stebbins 1985). The coloration of young snakes is similar to that of the adults.

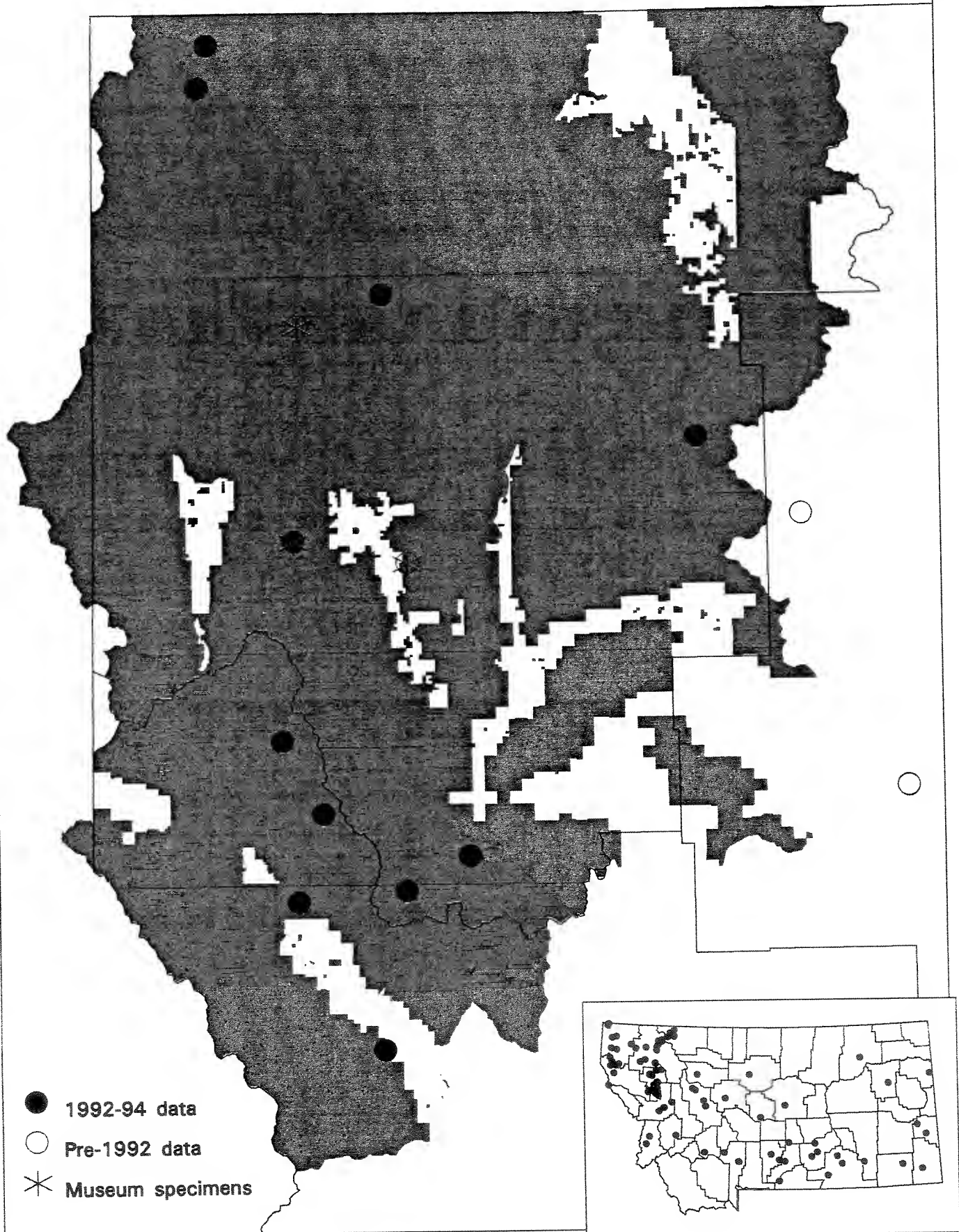
Habitat and Habits: The habitat and habits of the Western terrestrial garter snake are similar to the Common garter snake, i.e., they are found in most habitats but are particularly common around wetlands. Distribution records during this survey showed only a slightly greater occurrence at higher elevations than the Common garter snake, but the numbers are too small for a valid comparison. The highest elevation noted was 4340 ft., but they probably occur much higher.

Surveying: Surveys using mark-recapture techniques or sight surveys can be conducted in areas of higher concentrations around marshes and bogs.

Status: Western terrestrial garter snakes were found in all districts of the KNF. Their populations appear to be stable.

Montana Natural Heritage Program Rank: G5 S5.

Thamnophis sirtalis -- Common Garter Snake
Occurrences on or near the Kootenai National Forest, Montana



Common Garter Snake (*Thamnophis sirtalis*).

Description: The Common garter snake consists of two subspecies in western Montana, both ranging from 16-42" in snout-vent length. Both subspecies have three yellow longitudinal stripes: one located dorsally and one on each side. Between the yellow stripes is a black stripe, broken with red spots in *T. s. parietalis* but not in *T. s. fitchii*. Ventral coloration varies from yellow to bluish, and some individuals of the red-sided subspecies have small black spots on the edge of the ventral scales. The dorsal scales are keeled, and normally there are 7 upper labial scales. The Common garter snake is a live-bearer giving birth to 12-18 young during the summer (Hammerson 1982a). Young garter snakes have approximately the same coloration as the adults.

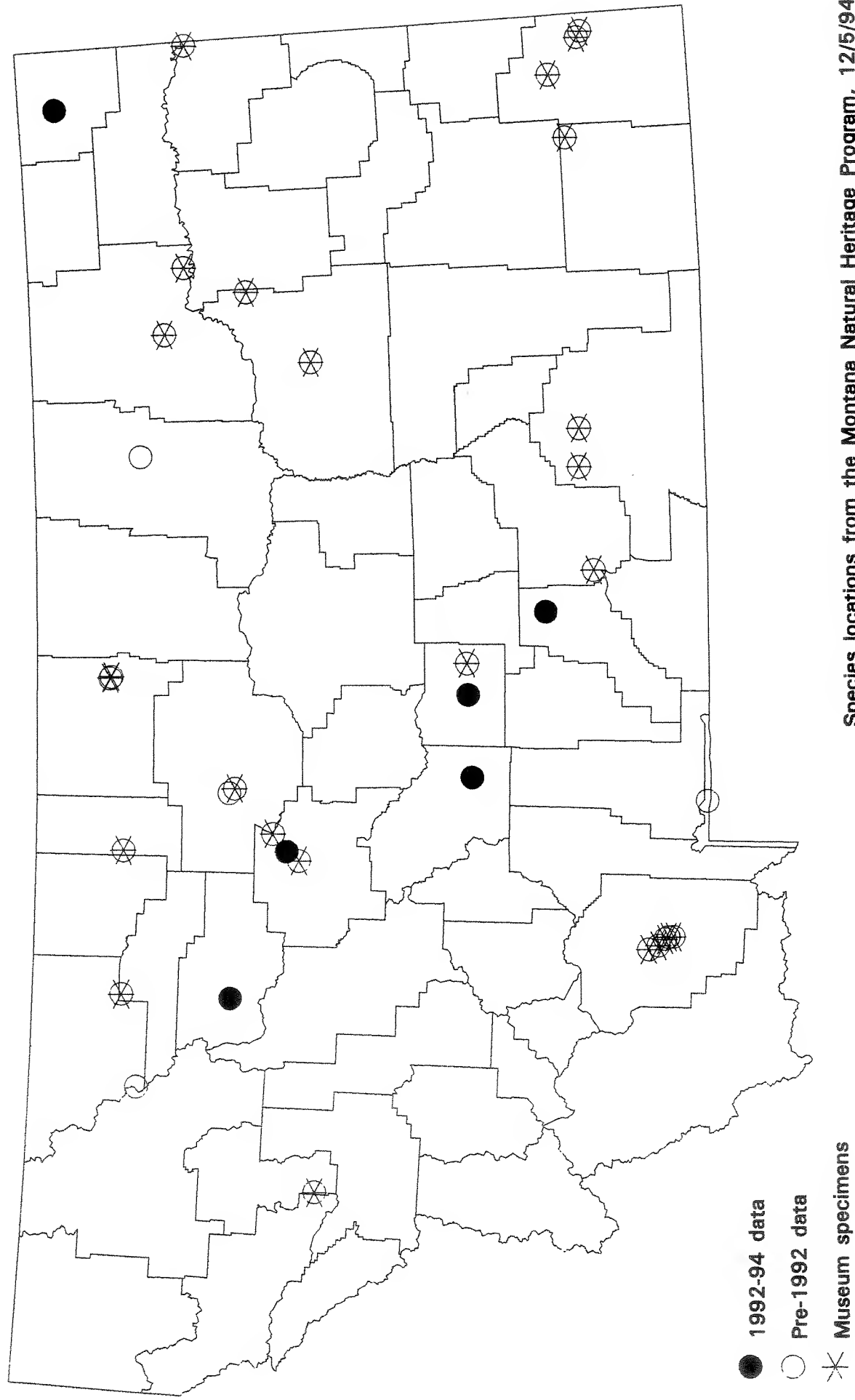
Habitat and Habits: Garter snakes are found in all forest habitats but more so at lower elevations around marsh-bog-pond situations where they prey on young fish, frogs, toads, mice and invertebrates. They are sometimes confused with water snakes because of their frequent aquatic exploits, but there are no water snakes in Montana. Typical of most garter snakes, they emit a noxious secretion when handled and can be aggressive when disturbed. Garter snakes are capable of biting, but their teeth are rarely long enough to break the skin. The Common garter was found between 2350-4800 ft. elevation in this survey. In Wyoming, the Common garter snake is replaced at higher elevations by the Western terrestrial garter snake (Baxter and Stone 1985). Garter snakes eat a variety of vertebrates and invertebrates, with the Common garter snake concentrating more on amphibians than the Western terrestrial garter snake.

Surveying: Approximate numbers around marsh-bog habitats can be estimated based on a mark-recapture approach, or sight surveys, if done on a regular basis and under warm, sunny conditions.

Status: Both subspecies are probably present throughout the KNF, but the red-sided subspecies was much more common in the present survey. Garter snake populations appear to be stable based on casual observations and data from this survey. This species appears to be more common than the Western terrestrial garter snake.

Montana Natural Heritage Program Rank: G5 S5.

Occurrences of *Ambystoma tigrinum* (Tiger Salamander) in Montana



Species Potentially Present on the Kootenai National Forest

Tiger Salamander (*Ambystoma tigrinum*)

Description: Adults have a smooth moist skin without scales and the color pattern is highly variable; usually the background color is dark, with lighter blotches of yellow, tan or green. The adult is large and heavy-bodied with a snout-vent length of 3-6". Adult tiger salamanders can be separated from other Montana species by: 1) their large sized and heavy body; and 2) two prominent tubercles on the bottom of each hind foot. Egg masses are typically laid in small clusters of 5-120, but may be laid singly (Nussbaum et al. 1983, Leonard et al. 1993). Larval tigers are typically pale green or brown-colored, though some are nearly white in bentonite clay ponds. They are found in lakes and ponds, have external gills, and are relatively large (0.75-4" snout-vent) and heavy-bodied.

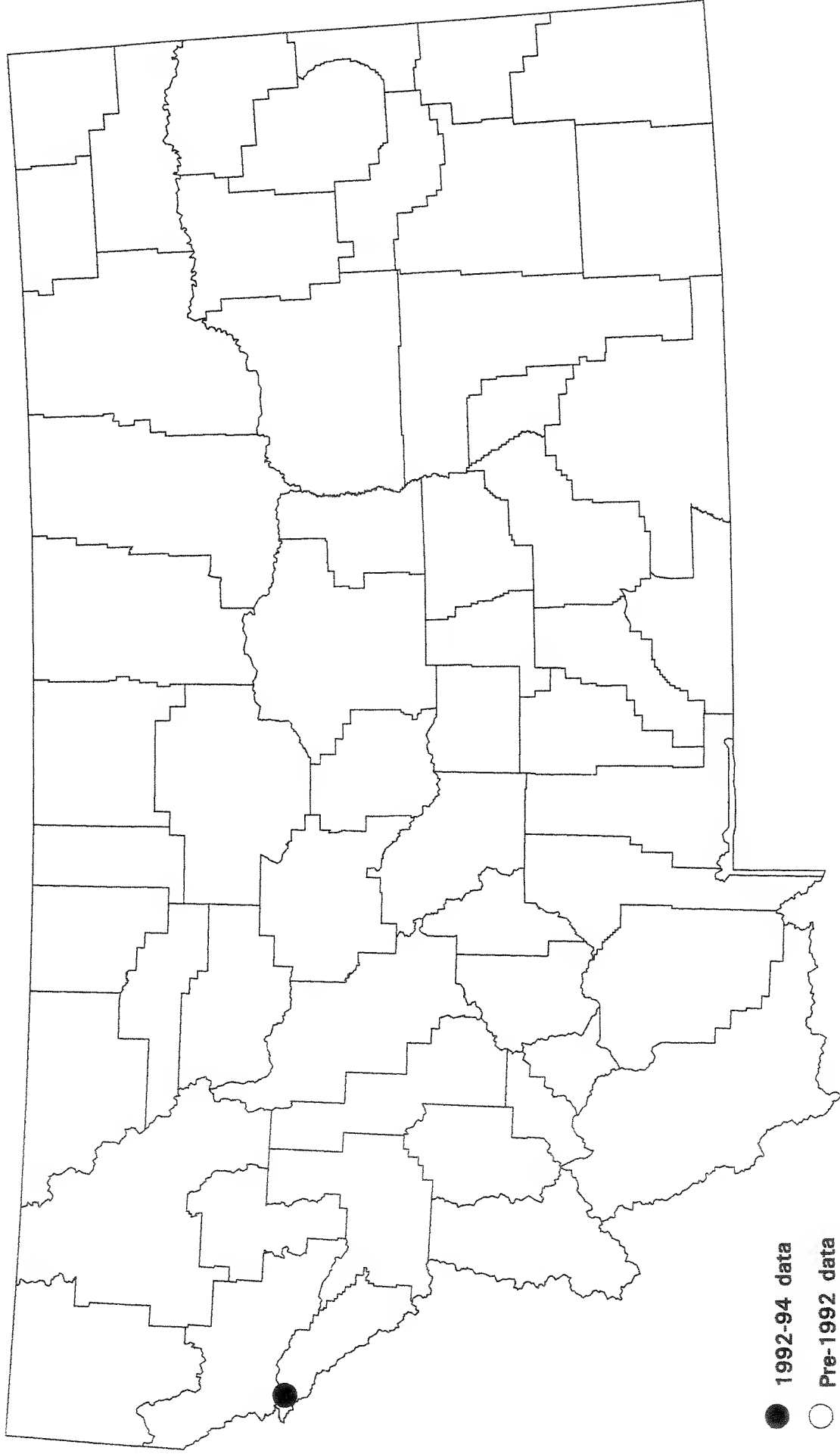
Habitat and Habits: Tiger salamanders in Montana are primarily associated with prairie or agricultural habitats in eastern Montana. They breed in ponds or lakes, usually those without fish present. In arid areas they may also be found in springs, intermittent streams and stock ponds. In the Pacific Northwest adults go to the breeding ponds soon after snow-melt. Following breeding, adults may remain in the pond or may move to upland areas and live in burrows of their own or in those of other animals. Eggs hatch in 2-5 weeks in Colorado and metamorphosis takes 2-24 months (Hammerson 1982a). In some locations larval salamanders never transform, but rather become sexually mature and breed while still retaining external gills. This process is referred to as neoteny and these salamanders are often referred to as "axolotls" or "water dogs."

Surveying: Larvae can be seen in ponds during the day and may be sampled with a dipnet. During the breeding season adults are often seen moving to or away from the water or breeding in it. Pitfall traps may be used at this time to capture adults. In areas where larvae transform, migrations of hundreds or thousands of newly transformed adults are occasionally seen in mid-late summer or early fall.

Status: The most common salamander in eastern Montana. They have not yet been found in the KNF, but there are scattered reports from elsewhere in western Montana. They should be surveyed for in low elevation ponds and lakes, particularly those without fish and within grassland habitats.

Montana Natural Heritage Program rank: G5 S5.

Occurrences of *Dicamptodon aterrimus* (Idaho Giant Salamander) in Montana



- 1992-94 data
- Pre-1992 data
- ✱ Museum specimens

Species locations from the Montana Natural Heritage Program, 12/5/94

atlas/maps/sp5.cmp

Idaho Giant Salamander (*Dicamptodon aterrimus*)

Description: Adults have light tan or bronze marbling on a dark brown or black background.

The adult is heavy-bodied, with a large head and muscular legs; snout-vent lengths vary from 3.5 to 8". Like all salamanders, it has smooth moist skin without scales. Adult Idaho giant salamanders can be distinguished from other Montana species by a combination of: 1) large size and muscular legs; 2) marbled pattern; and 3) lack of a tubercle on the hind feet. Larval Idaho giant salamanders are identified by their short, bushy, external gills, large size, dorsal fin starting at or behind the rear limbs, and stream dwelling habitat. In contrast, other larval salamanders found in Montana live in ponds, have long, feathery gills, and have a dorsal fin originating far forward of the rear legs.

Habitat and Habits: Transformed adults are seldom seen, but live in moist coniferous forests.

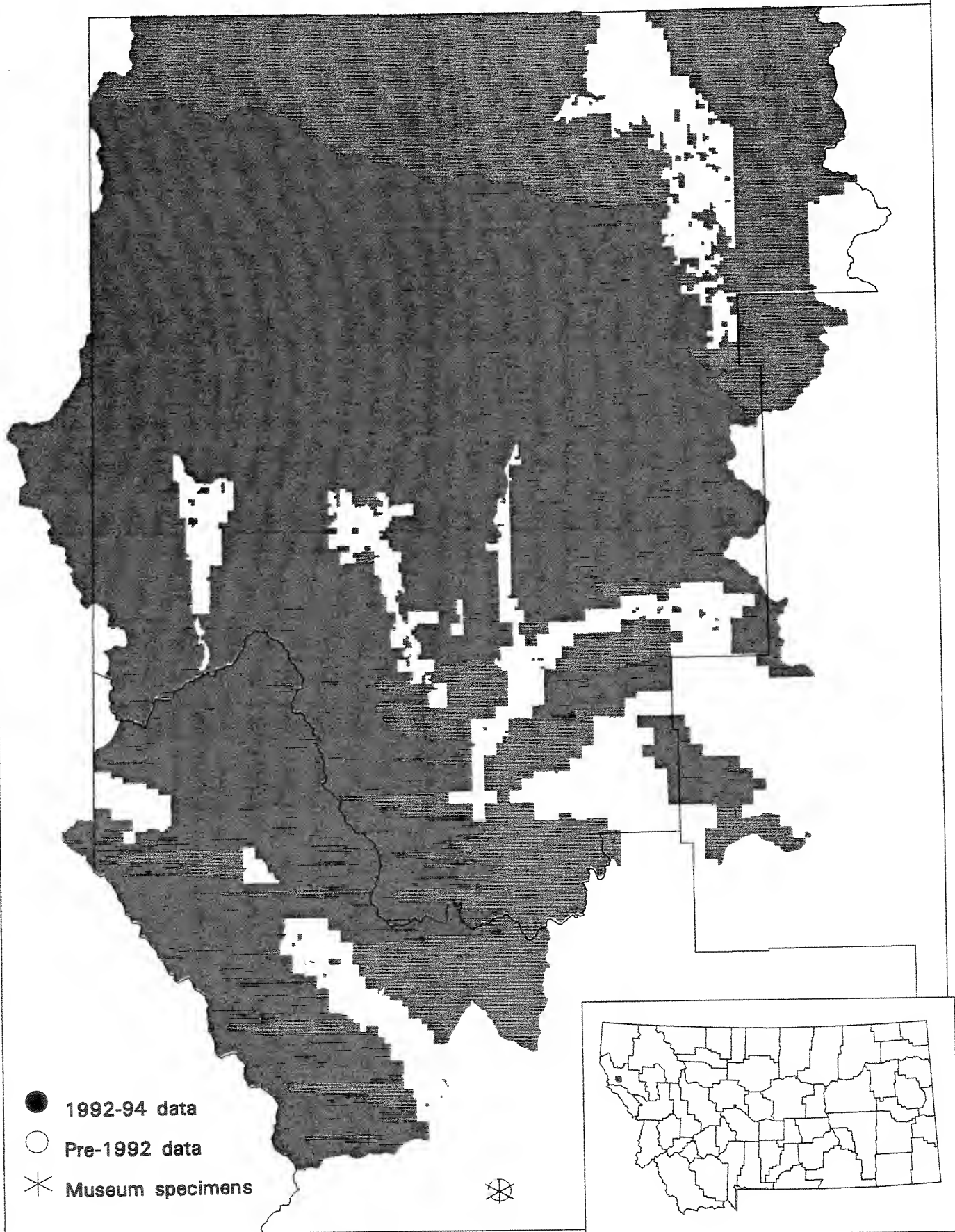
They may be found under logs, bark, or rocks, and are seen most often moving about on warm rainy nights. Larval Idaho giant salamanders are found in swift, cold mountain streams but may occasionally be found in lakes or ponds. Little is known about their reproduction. As discussed for tiger salamanders, Idaho giant salamanders may become sexually mature and breed while still retaining external gills.

Surveying: Larvae can be seen in pools or slow-water of streams at night and can be sampled with a dipnet. During the day, larvae may be captured by putting a net across a stream and moving logs, rocks, or other hiding places just upstream from it. Adults may occasionally be found in and under logs on the forest floor. Since they move around at night, particularly when it is warm and rainy they may be captured by either night searches or pitfall traps.

Status: Idaho giant salamanders are not known with certainty in western Montana, but they are regularly found in Idaho just over the Mineral County line. Two unverified sight records exist from Gilt Edge Creek and Big Creek in Mineral County.

Montana Natural Heritage Program rank: G4 S1?

Taricha granulosa -- Roughskin Newt
Occurrences on or near the Kootenai National Forest, Montana



Rough-skinned Newt (*Taricha granulosa*)

Description: Adults are dark brown dorsally and bright yellowish-orange ventrally. This color pattern distinguishes it from all other Montana salamanders. The skin is very grainy. The rough-skinned newt is a mid-sized salamander with a snout-vent length of 2.25 -3.5". Eggs are fertilized internally and laid singly on submerged vegetation (Nussbaum et al. 1983, Leonard et al. 1993). Larval newts, which live in lakes and ponds, are brown with a row of light spots along the sides.

Habitat and Habits: Adults typically live in moist forested habitat. In the Pacific Northwest adults go to the breeding ponds during late winter and spring rains. Following breeding, adults may remain in the pond or move to upland areas. The rough-skinned newt is the only salamander in the northwest United States that commonly moves about on land during the day. When disturbed by a predator, the newt will arch its body up, exposing its brightly colored underside. This serves as a warning to potential predators. The newt has a poison skin secretion known as "tetrodotoxin," which is chemically the same as that found in puffer fish. Handling the newt is not a problem, but be sure to wash your hands afterwards. Ingesting the secretions could be fatal.

Surveying: Both larvae and adults can be seen in ponds during the day and at night and can be captured with a dipnet. During the breeding season adults are commonly seen moving to or away from the water where they may be sampled with pitfall traps.

Status: The rough-skinned newt is known from a single specimen taken near Thompson Falls in 1979. Other individuals could not be found at the same locality in later years (Nussbaum et al. 1983). It is most likely that the newt's presence in Montana is the result of an introduction from California, Washington, or Oregon.

Montana Natural Heritage Program rank: G5 SE1.

Wood Frog (*Rana sylvatica*)

Description: Adults have a prominent black facial mask that extends from the tip of the snout to behind the tympanum; the mask is bordered below by a white lip-line. The upper background color is quite variable, but most often brownish or gray. There may be dark spots on the back, and a light-colored line may run down the middle of the back. The belly is white to cream-colored, with often darker blotches on the chest and throat. Wood frogs never have bright red, orange or yellow ventrally, as do adult (but often not subadult) Spotted frogs. Wood frogs have relatively smooth skin, while similar sized Spotted frogs have skin with small warts and bumps.

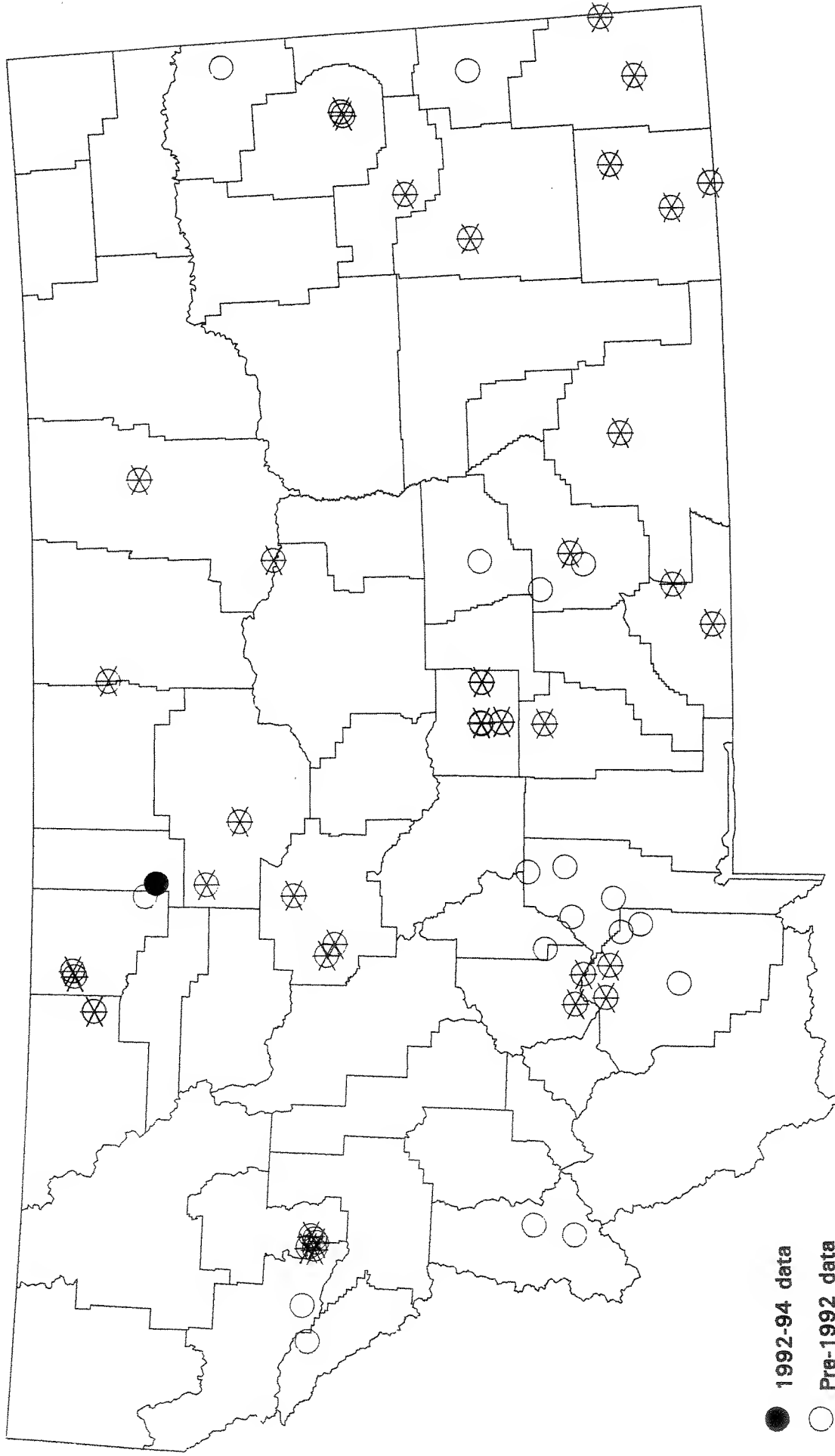
Habitat and Habits: Wood frogs are regularly found near water in forest habitats. Breeding takes place in lakes, ponds (temporary and permanent), springs, and occasionally backwaters or beaver ponds in streams. Wood frogs are explosive breeders, with all the breeding activity compressed into 1-2 weeks. They breed very early in the spring, often when ice is still being formed on the ponds at night. Eggs are laid in globular masses which range from 50-1600 in Alaska to 1000-3000 in Minnesota, and frequently all the masses in a particular pond are in the same location (Breckenridge 1944, Nussbaum et al. 1983). Some researchers have found Wood frogs to move into more terrestrial habitats following breeding (Heatwole 1961, Bellis 1962, Conant 1975), while others have found them near water for at least 6 weeks following breeding (Haynes and Aird 1981).

Surveying: During the spring months, both tadpoles and adults can be seen in and along the water during the day and can be sampled with a dipnet. As the weather dries in the early summer, the adults become much less visible but can still be found. In Wyoming, adults were typically found in less than an hour of searching even during July surveys (Chris Garber, pers. comm.).

Status: Several unconfirmed museum records exist for Montana with the localities being Bowman Lake (Glacier National Park, no date), Havre (no date), and Billings (1909); only Bowman lake is a potentially correct habitat. Several additional unconfirmed sight records exist but given the difficulty of distinguishing Wood frogs from young Spotted frogs, their validity is questionable. Good quality close-up photos or specimens should be used to verify the presence of this species in Montana.

Montana Natural Heritage Program rank: G5 SR.

Occurrences of *Crotalus viridis* (Western Rattlesnake) in Montana



● 1992-94 data

○ Pre-1992 data

* Museum specimens

Species locations from the Montana Natural Heritage Program, 12/5/94

atlas/maps/sp39.cmp

Western Rattlesnake (*Crotalus viridis*).

Description: Rattlesnakes belong to the pit-viper family, Crotalidae, which have a heat-sensing pit located between the nostril and the eye. The fangs are hollow and hinged, allowing them to be folded back against the roof of the mouth. The head is triangular in shape, the front of which is blunt-nosed. The eyes are slightly elevated. There are several white lines which run along the side of the head. Adult Western rattlesnakes have a narrow neck but a stout body with total length ranging from 15-45 inches. The dorsal background color varies from pale green to brown with a series of brown or black blotches edged with a dark and then light line extending the length of the body. The blotches often merge into rings on the tail. There are also blotches on the sides of the body. The ventral side is pale yellow to white and without blotches. The scales are keeled. The tail ends in a rattle which helps to warn potential predators of the snake's presence. Females give birth to 4-21 young during the summer; the young have the same color pattern as the adults (Hammerson 1982a)

Habitat and Habits: The Western rattlesnake is an inhabitant of more open and arid country but it is also found in Ponderosa pine stands or mixed grass-coniferous forests. It is more likely to be encountered on south-facing slopes and areas of rock outcrops. Rattlesnakes may den in large numbers, moving up to 10 miles out from the dens during the summer (Peterson, pers. comm.) In Wyoming, it is found at elevations of over 8500 feet (Baxter and Stone 1985). Rattlesnakes prey on a variety of animals including mice, ground squirrels, rabbits, amphibians, and other snakes.

Surveying: Walk-through surveys on warm sunny days, including rolling over rocks and logs is probably the best method for determining relative numbers. Mark-recapture methods can be done to determine more precise numbers.

Status: The Western rattlesnake has not been found in the KNF but it is known from areas to the east (Flathead Reservation) and south (Lolo NF). It would most likely be encountered in the arid regions of the Fisher River and Fortine districts if at all present on the KNF. It is feared and often needlessly killed due to its poisonous bite. The habit of denning at traditional sites in large numbers makes rattlesnakes vulnerable to commercial collecting or simply killing by fearful people.

Montana Natural Heritage Program Rank: G5 S4.

Ranger District Information

Cabinet District: The only species specific to the Cabinet District is the Bullfrog which is known from a single pond on private property. The Idaho giant salamander may be present due to its proximity to known localities in Idaho and unverified sight records in the Lolo National Forest near St. Regis. Substantial populations of the Tailed frog were found in higher mountain streams both in the Cabinet drainage and in the Kaniksu portion of the district (south of Hwy 200). The Coeur d'Alene salamander is similarly known from sites on both sides of Hwy 200, including a new location on Pilgrim Creek. Re-confirmation of known populations of the Coeur d'Alene salamander were made on Beaver and White Pine Creek but not on the Vermillion River. No toad and only two Pacific chorus frog populations were found breeding in the district which may be a cause for concern. Several ideal marsh-pond habitats which might be considered for long-term monitoring include Rock Creek Meadows and the Willow Creek ponds. There is also good amphibian habitat on a number of private lands along the Clark Fork, the Bull River and their tributaries. Concerned citizens might be willing to participate in long-term surveys.

Three Rivers District: No unique species are known within the District, but the Coeur d'Alene salamander, a Sensitive Species, was present. The Kootenai Falls West site should be monitored annually following the protocols in the Coeur d'Alene Salamander Conservation Assessment (Cassirer et al. 1994). Perhaps the best chance of finding the Wood frog occurs in the upper Yaak River drainage since this species is distributed primarily to the north in Canada and has also been found at one location in north Idaho. Pete Creek Meadows and several ponds south of Bull Lake Campground offer good pond/marsh habitat for long-term monitoring as do several ponds associated with the Yaak River near Baldy Creek. The owner (Burk family) of a pond along 17 Mile Creek would be interested in participating a possible long-term monitoring program there. A known population of Alligator lizards north of Troy could be monitored on a regular basis. Further investigations of the lakes and ponds in the Northwest Peak Scenic Area would be appropriate.

Libby District: Streams which flow off of the north and northeast sides of the Cabinet Mountains offer some of the best and most extensive populations of Tailed frogs (in addition to Bull Trout), i.e. Lake Creek, Libby Creek, Ramsey Creek, Bear Creek, etc. There are also several Coeur d'Alene sites in this district along Quartz and Pike Creeks. Since both species have restricted populations, attention should be given to their continued existence. In particular, the Kootenai Falls East site should be monitored annually following the protocols in the Coeur d'Alene Salamander Conservation Assessment (Cassirer et al. 1994). Marsh areas associated with Blue Lake and LaFoe Lake offer long-term monitoring sites for Long-toed salamanders, Spotted frogs, Western toads, and Pacific chorus frogs.

Rexford District: Potential long-term monitoring sites of marsh type habitats include Arnold's Pond and the Horse Lakes. There were only two streams where the Tailed frog was found during this survey, the North and South Forks of Big Creek; these two site should probably be

monitored. Others searched included Boulder Creek, Dodge Creek, Sullivan Creek, Young Creek, Flat Creek. Other Tailed frog sites are known from previous records. The numerous seeps along the west side of Lake Koocanusa should be checked periodically for the Coeur d'Alene salamander. In particular, the Koocanusa North site should be monitored annually following the protocols in the Coeur d'Alene Salamander Conservation Assessment (Cassirer et al. 1994).

Fortine District: The tributaries of Grave Creek (Clarence Creek and Foundation Creek) had substantial populations of Tailed frogs. Why these frogs did not extend down to Grave Creek or whether they were just missed is unknown. Similarly, it was surprising not to have found them in Deep Creek, as it appeared to have ideal habitat. The Ten Lakes Scenic Area should probably be surveyed in more depth with an eye out for the Wood frog which is known north of the border in Alberta. Both Hagadore Lake and Turtle Lake offer long-term monitoring of marsh type habitats as does a small pond just south of Louis Lake which contained the most dense population of Long-toed salamander larvae encountered in the survey. Some of the more dry and open Ponderosa pine forests in the south part of the district could contain the Gopher snake, Racer, or Western Rattlesnake. Reliable sightings of any of these species as well as the Alligator lizard and Western skink should be kept on file. The absence of any toad breeding in this district was notable, but some breeding sites may yet be located.

Fisher River District: Streams along the south edge of the Cabinet Mountains (Silver Bow Creek and Baree Creek) had substantial Tailed frog populations which could be monitored regularly. A previous fish survey in the district revealed a number of other streams with Tailed frogs: Five Mile Creek, Deer Creek, Cow Creek, East Fisher River and Himes Creek. Several marsh areas, such as along Sylvan Lake, the oxbow pond on the Silver Butte Fisher River and the marsh at the headwaters of Blue Creek are good potential monitoring sites. The latter site was one of the few areas observed where Pacific chorus frogs successfully bred in 1994. In the more arid regions south of McGregor Lake, the Gopher snake, Racer and Rattlesnake might occur; any reliable sightings should be kept on file.

RECOMMENDATIONS

- 1) Monitoring of the Coeur D'Alene salamander should be conducted following the specific protocols and sites in the Conservation Assessment (Cassirer et al. 1994). This includes monitoring all sites every 10 years and annually at three sites; these include the Koocanusa North site on the Rexford District, the Kootenai Falls East site on the Libby District, and the Kootenai Falls West site on the Three Rivers District (Cassirer et al. 1994).
- 2) Long-term monitoring of typical marsh-pond habitats should be set up at two or three sites in a district in order to evaluate relative numbers and breeding success of the more common species: Long-toed salamander, Spotted frog, Western toad, Pacific chorus frog, Western terrestrial garter snake, Common garter snake, and Painted turtle. Particular attention needs to be given to the Western toad and the Pacific chorus frog.
- 3) Due to the time restraints and the large area covered in this survey, it should not be regarded as a definitive index of all the herptiles or their distribution in the KNF. The secretive habits of many amphibians and reptiles, and our lack of knowledge regarding their reproductive behavior makes it difficult to assess their overall status. Long-term monitoring and/or frequent surveys are the only tools we have for assuring their existence into the future. We recommend that additional surveys be conducted, concentrating on: A) potential Western toads and Pacific chorus frogs breeding sites; B) low-elevation, xeric habitats for reptiles; and C) any historic amphibian sites not yet revisited. In particular, additional wetland surveys should be done on small ponds and lakes which lack fish and dry up in at least some years; such areas at all altitudes need additional surveys. These areas are often missed because many do not appear on USGS maps, particularly those that are quite small and dry up every year.
- 4) Life history and ecology of the amphibians in Montana is poorly known for most species. Only perhaps for the Tailed frog and Coeur d'Alene salamander are information presently available to do habitat suitability models and perhaps population viability analyses. For the Spotted frog we are lacking information on which habitats successful reproduction is taking place, as opposed to breeding attempts. For the other species of amphibians and all reptiles we are far from having sufficient data for habitat suitability models or population viability analyses. Long-term monitoring will give us needed information on timing of and habitat requirements for successful breeding.
- 5) Sightings of the two lizard species (Alligator lizard, Western skink) and the Rubber boa, Racer, and Gopher snake are quite rare and usually fortuitous. It is recommended that reliable reports of these species be recorded; specific time, location, and observer should be kept on file. It is possible that any one of these species could disappear without us even realizing it.
- 6) Sightings of the Tiger salamander, Idaho giant salamander, Leopard frog, Wood frog, and Western rattlesnake would represent first-time occurrences and range extensions, thus it is

important to document and record such data. Either photos should be taken or, if appropriate, a specimen collected.

BIBLIOGRAPHY

- Anderson, M. E. 1977. Aspects of the ecology of the two sympatric species of *Thamnophis* and heavy metal accumulation within the species. M.S. Thesis, University of Montana, Missoula. 147 pp.
- Baxter, G. T. and M. D. Stone. 1985. Amphibians and reptiles of Wyoming. Wyoming Game and Fish Department. Cheyenne, Wyoming. 137 pp.
- Bellis, E. D. 1962. The influence of humidity on wood frog activity. Amer. Midl. Nat. 68(1):130-148.
- Bergeron, D. No date. Terrestrial wildlife survey, Coal Creek Mine Area, Montana, 1977-1978. West. Tech. & Eng., Inc., Helena.
- Black, J. H. 1969. The frog genus *Rana* in Montana. Northwest Sci. 43:191-195.
- Black, J. H. 1970a. Amphibians of Montana. Mont. Fish & Game Dept., Pub. No. 1 of Animals of Montana Series.
- Black, J. H. 1970b. Some aspects of the distribution, natural history and zoogeography of the toad genus *Bufo* in Montana. M.S. thesis, University of Montana, Missoula.
- Black, J. H. 1970c. Turtles of Montana. Montana Wildlife, Animals of Montana Series 2:26-32.
- Black, J. H. 1970d. Unusual forms of boreal toads *Bufo boreas* (Amphibia: Bufonidae) in Glacier National Park, Montana. Proc. Okla. Acad. Sci. 50: 127-128.
- Black, J. H. 1971. The toad genus *Bufo* in Montana. Northwest Sci. 45: 156-162.
- Black, J. H. and A. M. Bragg. 1968. New additions to the herpetofauna of Montana. Herpetologica 24:247.
- Black, J. H. and R. B. Brunson. 1971. Breeding behavior of the boreal toad *Bufo boreas boreas* (Baird and Girard) in western Montana. Great Basin Nat. 31: 109-113.
- Black, J. H. and V. Craig (eds.). 1970. Amphibians of Montana. Montana Wildlife, Animals of Montana Series 1:1-32.
- Breckenridge, W. J. 1944. Reptiles and amphibians of Minnesota. Univ. Minnesota Press, Minneapolis. 202 pp.
- Breckenridge, W. J. and J. R. Tester. 1961. Growth, local movements, and hibernation of the Manitoba toad, *Bufo hemiophrys*. Ecology 42:637-646.
- Brunson, R. B. 1952. Recent collections of *Bufo boreas boreas* from western Montana. Proc. Montana Acad. Sci. 11:17-19.
- Brunson, R. B. 1955. Check list of the amphibians and reptiles of Montana. Proc. Mont. Academy Sci. 15:27-29.
- Brunson, R. B. and H. A. Demaree. 1951. The herpetology of the Mission Mountains, Montana. Copeia 1951:306-308.
- Bureau of Land Management. 1982. Bloomfield - North Fork baseline inventories - wildlife. Miles City, MT.
- Bury, R. B., P. S. Corn, K. B. Aubry, F. F. Gilbert and L. L. C. Jones. 1991. Aquatic amphibian communities in Oregon and Washington. U.S.D.A. For. Serv., Pac. NW Res. Station Gen. Tech Rep. PNW-GTR-285:353-362.
- Camp, Dresser, and McKee, Inc. 1981. Anaconda Stillwater project 12-month environmental baseline report. Tech. Rpt. for Anaconda Copper Co.

- Carey, C. 1993. Hypothesis concerning the causes of the disappearance of boreal toads from the mountains of Colorado. *Conservation Biology* 7(2):355-362.
- Cassirer, E. F., C. R. Groves, and D. L. Genter. 1994. Coeur d'Alene salamander conservation assessment. U.S.D.A. Forest Serv., Region 1, Missoula, MT. 55 pp.
- Clancy, C. G. 1993. Statewide fisheries investigation. Job completion report to the Fisheries Division of the Montana Department of Fish, Wildlife and Parks.
- Conant, R. 1975. A field guide to reptiles and amphibians of eastern and central North America. Second edition. Houghton Mifflin Co., Boston. xvii + 429 pp.
- Corn, P. S. No Date. Comment on the occurrence of *Pseudacris clarki* in Montana. *Bull. Chi. Herp. Soc.* 15(3):77-78.
- Corn, P. S. and J. C. Fogelman. 1984. Extinction of montane populations of northern leopard frog (*Rana pipiens*) in Colorado. *J. Herpetol.* 18:147-152.
- Craig, V. No date. The Axolotl "Walking Fish." *Montana Outdoors?* 2 pp.
- Daugherty, C. H. 1979. Population ecology and genetics of *Ascaphus truei* on examination of gene flow and natural selection. Ph.D. thesis, University of Montana, Missoula. 143 pp.
- Daugherty, C. H. 1982a. Age determination, growth, and life history of a Montana population of the tailed frog (*Ascaphus truei*). *Herpetologica* 38:461-468.
- Daugherty, C. H. 1982b. Age specific movement patterns of the frog *Ascaphus truei*. *Herpetologica* 38:468-474.
- Daugherty, C. H. & A. L. Sheldon. 1982. Age-determination, growth, and life history of a Montana population of the Tailed frog (*Ascaphus truei*). *Herpetologica* 38(4):461-468.
- Davis, C. V. and S. E. Weeks. 1963. Montana Snakes. Montana Dept. of Fish and Game, Helena, MT, pp.1-10.
- Dood, A. R. 1980. Terry Badlands nongame survey and inventory: final report. Montana Department of Fish, Wildlife, and Parks BLM Contract #YA-512-CT8-217. 70 pp.
- Econ, Inc. 1974. Terrestrial wildlife inventory for the Lame Jones and Ismay coal lease tracts. Tech. Rpt.
- Farmer, P. J. and K. Burgess. 1983. Jardine area baseline terrestrial wildlife study, May 15, 1981-May 15, 1982, for Homestake Mining Co. West. Tech. Eng., Helena.
- Farmer, P. J. and K. Burgess. 1984. Jardine area baseline terrestrial wildlife study. West. Tech. & Eng., Helena.
- Farmer, P. J. No date. Terrestrial wildlife survey, Pearl area, Montana, June, 1976 - June, 1977. Westech, Inc., Helena, MT.
- Farmer, P. J., S. B. Heath, D. J. Bergeron and K. L. Scow. 1985. Montana Tunnels project-baseline terrestrial wildlife study. Westech, Inc., Helena, MT. for Centennial Minerals, Inc.
- Flath, D. L. 1981. Vertebrate species of special concern. Montana Department of Fish, Wildlife, and Parks. 74 pp.
- Flath, D. L. 1984. Vertebrate species of special interest or concern: mammals, birds, reptiles, amphibians, fishes. Wildlife Division, Montana Department of Fish, Wildlife, and Parks. 76 pp.
- Franz, R. 1970. Additional notes on the Coeur D'Alene Salamander, *Plethodon vandykei idahoensis*, in Montana. *Bull. MD Herpetol. Soc.* 6:53-55.

- Franz, R. 1971. Notes on the distribution and ecology of the herpetofauna of northwestern Montana. Bull. Maryland Herp. Soc. 7:1-10.
- Franz, R. and D. S. Lee. 1970. The ecological and biogeographical distribution of the tailed frog, *Ascaphus truei*, in the Flathead River drainage of northwestern Montana. Bull MD Herp. Soc. 6:62-73.
- Genter, D. 1990. The Coeur d'Alene salamander, Montana's cliff-hanger. Montana Outdoors 21(5):15-17.
- Genter, D. L., A. Wilson, and E. Simon. 1987. Status report on Coeur d'Alene salamander in Montana. Montana Natural Heritage Program, Helena. 101 pp.
- Genter, D. L., Wilson, A. G. and E. M. Simon. 1988. Supplementary report on the status of the Coeur d'Alene salamander (*Plethodon vandykei idahoensis*) in Montana. Unpublished report to USDA Forest Service by Montana Natural Heritage Program, Helena. 39 pp. including maps.
- Green, D. M., C. H. Daugherty, and J. P. Bogart. 1980. Karyology and systematic relationships of the tailed frog *Ascaphus truei*. Herpetologica 36(4):346-352.
- Groves, C. R. and C. Peterson. 1992. Distribution and population trends of Idaho amphibians as determined by mail questionnaire. Unpubl. Rep. Idaho Dept Fish Game, Boise, Idaho. 16 pp.
- Hammerson, G. A. 1982a. Amphibians and reptiles in Colorado. Colorado Division of Wildlife, Denver. vii + 131 pp.
- Hammerson, G. A. 1982b. Bullfrog eliminating leopard frogs in Colorado? Herpetol. Rev. 13:115-116.
- Haynes, C. M. and S. D. Aird. 1981. The distribution and habitat requirements of the wood frog (Ranidae: *Rana sylvatica* LeConte) in Colorado. Col. Div. Wildl., Wildl. Res. Section Spec. Report 50. 29 pp.
- Heatwole, H. 1961. Habitat selection and activity of the Wood Frog, *Rana sylvatica* Le Conte. Amer. Midl. Nat. 66:301-313.
- Heyer, W. R., M. A. Donnelly, R. W. McDiarmid, L. C. Hayek, and M. S. Foster (eds.). 1994. Measuring and monitoring biological diversity: Standard methods for amphibians. Smithsonian Instit. Press, Washington, D.C. 364 pp.
- Hollenbeck, R. R. 1976. Movements within a population of *Rana pretiosa pretiosa* Baird and Girard in South Central Montana. Wyo. Acad. Sci. J. 8(1):72-73.
- Jellison, W. L. and J. H. Black. 1970. Tularemia in Montana and turtles of Montana. Mt. Wildlife, Nov. 1970. Mont. Fish & Game Dept.
- Kerr, R. 1989. Summary of 1989 monitoring of the Coeur d'Alene salamander (*Plethodon idahoensis*) in western Montana. Unpublished report for Montana Natural Heritage Program. 7 pp.
- Koonz, W. H. 1993. Amphibians in Manitoba. pp. 273-275. IN: Holroyd, G. L., H. L. Dickson, M. Regnier and H. C. Smith (eds). Proceedings of the Third Prairie Conservation and Endangered Species Workshop. Provincial Museum of Alberta, Nat. Hist. Occ. Pap. 19. 384 pp.
- Lais, P. M. 1976. *Gerrhonotus coeruleus*. Cat. Amer. Amphib. Reptiles 178.1-178.4.
- Leonard, W. P., H. A. Brown, L. L. C. Jones, K. R. McAllister and R. M. Storm. 1993. Amphibians of Washington and Oregon. Seattle Audubon Soc., Seattle, Washington. 168 pp.

- Lynch, J. E. 1984. Reproductive ecology of *Plethodon idahoensis*. M.S. Thesis, University of Idaho, Moscow. 59 pp.
- Lynch, J. E., Jr. and R. L. Wallace. 1987. Field observations of courtship behavior in Rocky Mountain populations of Van Dyke's Salamander, *Plethodon vandykei*, with a description of its spermatophore. J. Herpet. 21:337-340.
- Manno, S. 1992. The reptiles and amphibians of Lolo National Forest. Lolo Natl. For. pamphlet. 9 pp.
- Manville, R. H. 1957. Amphibians and reptiles of Glacier National Park, Montana. Copeia 1957:308-309.
- Martin, P. R. 1980. Terrestrial wildlife habitat inventory in southeastern Montana. MT Dept. of Fish, Wildlife and Parks and BLM.
- Martin, P. R. 1980. Terrestrial wildlife inventory in selected coal areas of Montana. MT. Dept. of Fish, Wildlife and Parks and BLM.
- Matthews, W. C. 1981. Broadus-Pumpkin Creek baseline inventory - wildlife. BLM, Miles City, MT.
- McEneaney, T. and J. Jensen. 1974. The reptiles and amphibians of the Charles M. Russell National Wildlife Refuge, 1974. Unpubl. mimeo. 3 pp.
- Metter, D. E. 1967. Variation in the Ribbed frog *Ascaphus truei* Stejneger. Copeia 1967(3):634-649.
- Micken, L. 1968. Some summer observations on the tiger salamander, *Ambystoma tigrinum*, in Blue Lake, Madison County Montana. Proc. Mont. Acad. Sci. 28:77-80.
- Micken, L. 1971. Additional notes on neotenic *Ambystoma tigrinum melanostictum* in Blue Lake, Madison County, Montana. Proc. Mont. Acad. Sci. 31:62-64.
- Middendorf, L. J. 1957. Observations on the early spring activities of the western spotted frog (*Rana pretiosa*) in Gallatin County, Montana. Proc. Mont. Acad. Sci. 17:55-56.
- Miller, J. D. 1975. Interspecific food relationships of Anurans in northwestern Montana and fluoride accumulation in amphibians and reptiles in northwestern Montana. M.S. Thesis, U. of Mont., Missoula. 105 pp.
- Miller, J. D. 1978. Observations on the diet of *Rana pretiosa*, *Rana pipiens*, and *Bufo boreas* from western Montana. Northw. Sci. 52:243-249.
- Montana Department of State Lands and U. S. Office of Surface Mining. 1982. Final EIS, Western Energy Company's Rosebud Mine Area C, Block 1.
- Montana Department of State Lands. No date. Draft EIS, proposed plan of mining and reclamation, Zortman Mining Company and Landusky Mining Company, Phillips County, MT.
- Montana Natural Heritage Program. 1987. Status report on the Coeur d'Alene Salamander (*Plethodon idahoensis*) in Montana. Unpublished report for USDA, Forest Service, Montana Natural Heritage Program, Helena. 98 pp.
- Mosimann, J. E. and G. B. Rabb. 1952. The herpetology of Tiber Reservoir Area, Montana. Copeia 1952:23-27.
- Mueller, C. F. 1969. Temperature and energy characteristics of the sagebrush lizard (*Sceloporus graciosus*) in Yellowstone National Park. Copeia 1969:153-160.
- Nelson, D. J. 1948. *Lampropeltis triangulum gentilis* in Montana. Herpetologica 4:170.

- Nelson, D. J. 1950. *Lampropeltis triangulum gentilis* in Montana. *Herpetologica* 6:41.
- Nussbaum, R. A., E. D. Brodie, Jr. and R. M. Storm. 1983. Amphibians and reptiles of the Pacific Northwest. Univ. Press of Idaho. 332 pp.
- Olson-Elliott and Associates. 1979. Environmental impact of the northern tier pipeline in Montana. Tech. Report prepared for Montana Department of Natural Resources and Conservation.
- Olson-Elliott and Associates. 1980. Terrestrial wildlife inventory, Montco wildlife study area. Tech. Report for Montco, Billings, MT.
- Peterson, C. R., E. D. Koch and P. S. Corn. 1992. Monitoring amphibian populations in Yellowstone and Grand Teton National Parks. Unpubl. Report to Univ. Wyo. Natl. Park Serv. Res. Center. 37 pp.
- Phillips, K. 1990. Where have all the frogs and toads gone? *BioScience* 40:422-424.
- Reel, S. 1989. Vest-pocket preserves. *Montana Outdoors* 20(2):27-29.
- Reel, S., L. A. Schassberger, and W. Ruediger. 1989. Caring for our natural communities: Region 1 - threatened, endangered and sensitive species program. USDA, USFS, Northern Region, Missoula, Montana.
- Reichel, J. D. in prep. Preliminary amphibian and reptile survey of the Lewis and Clark National Forest: 1994. Montana Natural Heritage Program.
- Rodgers, T. L., and W. L. Jellison. 1942. A collection of amphibians and reptiles from western Montana. *Copeia* 1942:10-13.
- Scow, K. L. 1978. Terrestrial wildlife survey, Zortman and Landusky areas, Little Rocky Mountains, MT. Tech. Rpt. for Zortman and Landusky Mining Co., Inc., by Westech, Inc.
- Smith, H. M. 1978. A guide to field identification Amphibians of North America. Golden Press, New York.
- Smith, H. M. and E. D. Brodie, Jr. 1982. Reptiles of North America. Golden Press, NY. 240 pp.
- Society for Northwestern Vertebrate Zoology. 1993. Annual meeting: amphibians in the Northwest. Held in Astoria, Ore, 18-20 March 1993.
- Stebbins, R. C. 1985. A field guide to western reptiles and amphibians. Second edition. Houghton Mifflin Co., Boston. xiv + 336 pp.
- Teberg, E. K. 1963. An extension into Montana of the known range of the salamander *Plethodon vandykei idahoensis*. *Herpetologica* 19:287.
- Teberg, E. K. 1965. Range extensions of the salamander *Plethodon vandykei idahoensis*. *Copeia* 1965:244.
- Thompson, L. S. 1982. Distribution of Montana amphibians, reptiles, and mammals. Montana Audubon Council. 24 pp.
- Timken, R. No date. Amphibians and reptiles of Beaverhead National Forest. Unpubl. mimeo. 16 pp.
- Turner, F. B. 1958. Life history of the western spotted frog in Yellowstone National Park. *Herpetologica* 14:96-100.
- Turner, F. B. 1960. Population structure and dynamics of the western spotted frog, *Rana p. pretiosa* Baird and Girard, in Yellowstone Park, Wyoming. *Ecol. Monogr.* 30(3):251-278.
- U.S. Fish and Wildlife Service. 1993. Endangered and threatened wildlife and plants: Finding on

- petition to list the spotted frog. Fed. Register 58(87):27260-27263.
- U.S. Forest Service and Montana Department of State Lands. 1985. Jardine joint venture project.
- U.S. Forest Service and Montana Department of State Lands. 1986. Jardine joint venture project, final EIS.
- U.S. Forest Service and Montana Department of State Lands. No date. Draft EIS, proposed plan of mining and reclamation, Troy Project, Asarco, Inc., Lincoln County, MT, vol. I.
- U.S. Geological Survey and Montana Department of State Lands. 1979. Draft, proposed mining and reclamation plan, Pearl Mine, Big Horn County, MT.
- U.S. Geological Survey and Montana Department of State Lands. No date. Draft environmental statement, proposed mining and reclamation plan, Spring Creek Mine, Big Horn County, MT.
- VTN. No date. Second year's analysis of terrestrial wildlife on proposed mine access and railroad routes in southern Montana and northern Wyoming, March 1979 - February 1980. Tech. Rep. prepared by VTN Wyoming, Inc., for Shell Oil Co.
- Westech, Inc. [Western Technology and Engineering]. 1981. The effects of the Tongue River Railroad on terrestrial wildlife. Technical Report for Tongue River Railroad Co.
- Westech, Inc. [Western Technology and Engineering]. 1982. Results of Phase one, step one, Little Rockies Project. Tech. Rpt. for Meridan Land and Mineral Co.
- Westech, Inc. [Western Technology and Engineering]. 1982. Wildlife reconnaissance, Cypress International Yellowstone Mine. Prepared for Hydrometrics, Inc.
- Westech, Inc. [Western Technology and Engineering]. 1987. Valley View Hills: baseline easement report. The Nature Conservancy, Big Sky Field Office, Helena, MT. 44 pp. plus appendices.
- Westech, Inc. [Western Technology and Engineering]. No date. Preliminary wildlife reconnaissance, Ruby and Little Ben mine areas, Little Rocky Mountains, Montana. Technical Report for Zortman and Landusky Mining Companies.
- Western Ecological Services Co. 1983. Wildlife inventory of the Knowlton known recoverable coal resource area, MT. Prep. for USDI, BLM Cont. No. VA-553-RFP2-1027.
- Western Ecological Services Co. 1983. Wildlife inventory of the Southwest Circle known recoverable coal resource area, MT. Prepared for U.S. Department of the Interior, BLM. Contract YA-553-RFP2-1027.
- Wheeler, G. C. and J. Wheeler. 1966. The amphibians and reptiles of North Dakota. University of North Dakota, Grand Forks. 103 pp.
- Wilson, A. G. and J. H. Larsen Jr. 1988. Activity and diet in seepage-dwelling Coeur d'Alene salamanders (*Plethodon vandykei idahoensis*). Northwest Science 62(5):211-217.

APPENDIX 1.

SITES SURVEYED DURING 1993-94

AMPHIBIAN AND REPTILE SURVEYS

APPENDIX 1. Sites surveyed during 1993-94 amphibian and reptile surveys.

Site	Location	Elevation	Date	Start Time
KOOTENAI NATIONAL FOREST				
Fortine District				
Alkali Lake, Pond West of	T36N R27W S26 SW4	3000	30 May 93	1515
Big Therriault Lake	T37N R25W S32 NW4	5600	01 Aug 94	1010
Big Therriault Lake outlet	T37N R25W S29 SE4	5540	31 Jul 94	1700
Clarence Creek	T36N R25W S2 NW4NW4	4480	30 Jul 94	1515
Deep Creek*	T35N R25W S14 S2	4400	29 Jul 94	1030
Divide Creek	T37N R24W S20 NW4	5360	31 Jul 94	1500
Fortine Creek Headwaters	T32N R26W S31 NW4NE4	3920	28 Jun 94	1720
Foundation Creek	T37N R25W S30 NE4	5010	01 Aug 94	1440
Grave Creek*	T37N R24W S29 NW4	4800	31 Jul 94	1420
Hagadore Lake	T34N R25W S4 SE4SW4	3040	29 Jul 94	1600
Lime Creek	T34N R26W S36 SW4SE4	3330	28 Jun 94	1410
Louis Lake*	T33N R25W S15 N2	4920	28 Jun 94	1100
Louis Lake, Pond North of	T33N R25W S15 NE4NW4	4910	28 Jun 94	1210
Murphy Lake	T34N R25W S5 NW4	2996	01 Aug 94	1615
Phills Lake*	T36N R28W S27 N2	2920	17 Aug 94	1650
Stahl Creek*	T36N R25W S10 NE4	4390	30 Jul 94	1310
Sunday Creek	T32N R26W S13 NW4	4793	14 May 94	1530
Sunday Lake	T33N R24W S7 NE4	3990	15 May 94	1900
Swisher Lake*	T37N R27W S17 SE4	2400	26 Jun 94	1300
Thirsty Lake*	T36N R27W S26 SW4	3000	30 May 93	1515
Thirsty Lake*	T36N R27W S26 SW4	3000	26 Jun 94	1515
Turtle Lake	T36N R27W S34 NW4	3020	30 May 93	1415
Wigwam Creek*	T37N R25W S21 NW4	5000	01 Aug 94	1115

* Sites with no herps found during survey

Appendix 1 (cont). Sites surveyed during 1993-94 amphibian and reptile surveys.

Site	Location	Elevation	Date	Start Time
Three Rivers District				
Bad Medicine Cmpgrd. Pond S. of	T28N R33W S4 SE4NW4	2350	28 Apr 94	1610
Baldy Creek*	T35N R33W S8 NW4	2840	06 May 94	1400
Basin Creek, Jct E. and W. Fks.	T36N R30W S16 SE4SE4	4420	27 Jun 94	1345
Blind Creek*	T35N R33W S9 NW4	2920	06 May 94	1115
Burnt Creek	T34N R32W S8 NW4	4040	17 Jul 94	1005
Burk Pond (Private)	T34N R33W S26 SW4SW4	2720	18 Jun 94	1200
Hawkins Pond	T37N R33W S18 NE4	6180	16 Jul 94	1330
Hawkins Pond	T37N R33W S18 NE4	6180	20 Aug 94	1400
Hellroaring Creek*	T35N R34W S12 NW4	3760	15 Jul 94	1715
Hoskins Lake	T36N R31W S17 SE4	3340	08 May 94	1615
Hoskins Lake	T36N R31W S17 NW4SE4	3340	10 Sep 94	1155
Keeler Creek	T30N R34W S29 SW4NE4	2980	29 Apr 94	1230
Keeler Creek	T30N R34W S28 SE4NW4	2820	14 Jul 94	1440
Kilbrennan Lake outlet	T33N R33W S29 NW4NW4	2840	06 May 94	1405
Meadow Creek, South Fork	T35N R34W S22 SW4	4150	15 Jul 94	1800
Pete Creek	T36N R33W S2 NW4	3650	07 May 94	1510
Pete Creek Meadows	T37N R33W S24 NW4	4290	07 May 94	1300
Ross Creek*	T28N R33W S7 N2	2780	14 Jul 94	1700
Spread Creek	T36N R34W S24 NE4	4160	15 Jul 94	1415
Spread Creek	T36N R34W S14 SE4SE4	4300	15 Jul 94	1550
Yaak R. Pond by Whitetail Cmpgrd	T36N R33W S2 E2	2910	29 May 93	1430
Yaak R. backwater by Baldy Crk.	T35N R33W S8	2830	30 May 93	1620
Yaak R., East Fork	T37N R30W S27 SE4SE4	3780	27 Jun 94	1700
Yaak R., West Fork	T37N R33W S22 SE4	4603	16 Jul 95	1530

* Sites with no herps found during survey

Appendix 1 (cont). Sites surveyed during 1993-94 amphibian and reptile surveys.

Site	Location	Elevation	Date	Start Time
Three Rivers District (cont.)				
Vinal Lake	T36N R31W S30 SE4	2940	10 Sep 94	1415
Vinal Lake Road, Ponds on	T35N R32W S12 SE4	3355	08 May 94	1330
Zero Creek*	T35N R33W S8 NE4	2920	06 May 94	1230

* Sites with no herps found during survey

Appendix 1 (cont). Sites surveyed during 1993-94 amphibian and reptile surveys.

Site	Location	Elevation	Date	Start Time
Rexford District				
Arnold's Pond	T36N R28W S4 NW4NW4	2930	16 May 94	1600
Big Creek, South Fork	T34N R30W S16 E2	3480	21 Jun 94	1320
Boulder Creek	T36N R29W S32 SE4NW4	4550	27 Jun 94	1210
Boulder Creek*	T36N R29W S32 NE4	4410	18 Aug 94	1315
Dodge Creek`	T37N R29W S36 NW4	4410	17 Aug 94	1630
Flat Creek*	T34N R28W S4 NW4	4200	02 Aug 94	1340
Horse Lakes	T34N R30W S31 NW4	4240	30 May 93	1700
Horse Lakes	T34N R30W S31 NW4	4240	21 Jun 94	1600
Lake Koocanusa, Seep on E. side	T35N R28W S7 NW4SW4	2600	18 May 94	1230
Lake Koocanusa, Seep on W. side	T33N R28W S32 NE4NE4	2800	17 May 94	1800
Lake Koocanusa, Seep on W. side	T33N R28W S29 SE4SW4	2820	17 May 94	1845
Lake Koocanusa, Seep on W. side	T33N R28W S29 NE4SW4	2800	17 May 94	1915
Lake Koocanusa, Seep on W. side	T33N R29W S11 SE4SE4	2615	17 May 94	1945
Lake Koocanusa, Seep on W. side	T33N R29W S11 NW4SE4	2590	17 May 94	2015
Lake Koocanusa, Seep on W. side	T34N R29W S11 NW4NW4	2600	17 May 94	2045
Lake Koocanusa, Seep on W. side	T35N R29W S35 SE4NE4	2590	17 May 94	2115
Lake Koocanusa, Seep on W. side	T36N R29W S22 NE4	4620	18 Aug 94	1100
Sullivan Creek*	T35N R28W S29 SE4	2950	02 Aug 94	1115
Sutton Creek*	T35N R27W S21 NE4NW4	4400	10 Jun 93	1500
Tepee Lake	T35N R27W S21 NE4NW4	4400	17 May 94	1330
Tepee Lake	T35N R27W S21 NE4NE4	4340	10 Jun 93	1400
Tepee Lake, Pond E. of	T34N R29W S26 SE4SW4	2600	18 May 94	1430
Tweed Creek	T37N R28W S18 SE4	3265	17 Aug 94	1400
Young Creek*				

* Sites with no herps found during survey

Appendix 1 (cont). Sites surveyed during 1993-94 amphibian and reptile surveys.

Site	Location	Elevation	Date	Start Time
Libby District				
Bear Creek	T28N R31W S15 SE4	3480	11 Aug 94	1200
Big Cherry Creek	T28N R31W S9 NW4	3320	11 Aug 94	1415
Big Hoodoo Mountain	T29N R31W S32 NW4	3200	09 Jun 94	2210
Blue Lake	T32N R30W S16 NW4SW4	3920	20 Jun 94	1530
Blue Lake, Marsh 1 mi. E. of	T32N R30W S16 SE4	3970	15 Jun 93	1815
Blue Lake, Marsh 1 mi. E. of	T32N R30W S16 SE4	3970	20 Jun 94	1330
Bull Creek Bog	T32N R31W S21 SE4	3870	09 Jul 93	2030
Deep Creek Bog	T29N R31W S21 N2	3090	09 Jul 93	1630
Flower Creek, South Fork	T30N R31W S19 SE4	2900	14 Jul 93	2200
Flower Lake	T30N R32W S24 N2	3830	14 Jul 93	1730
Flower Lake	T30N R32W S24 N2	3830	10 May 94	1915
FS Rd 4768, Pond by	T29N R30W S8 NE4NE4	3620	17 Jun 94	1220
FS Rd 4792, Pond by	T29N R31W S11 W2	2600	09 Jul 93	1530
Geiger Lake, Lower	T26N R31W S13 N2	4720	11 Jun 94	1420
Howard Lake	T27N R31W S13 NW4	3885	10 May 94	1500
LaFoe Lake	T33N R32W S13 SW4	3820	18 Jun 94	1630
Lake Creek	T26N R30W S8 NW4NE4	3330	08 Jun 94	2130
Leigh Creek	T28N R31W S4 NW4	3520	11 Aug 94	1510
Libby Creek	T28N R30W S9 SW4	2880	16 Jun 94	2200
Libby Creek	T27N R31W S11 E2	3640	09 Jun 94	1410
Loon Lake	T33N R32W S25 NW4	3607	09 May 94	1330
Pipe Creek, E. Fork headwaters	T34N R30W S31 W2	4240	30 May 93	1510
Ramsey Creek	T27N R31W S2 SW4	4160	11 Aug 94	1100
17 Mile Creek	T33N R32W S15 SE4	3280	17 Jul 94	1330

* Sites with no herps found during survey

Appendix 1 (cont). Sites surveyed during 1993-94 amphibian and reptile surveys.

Site	Location	Elevation	Date	Start Time
Cabinet District				
Big Beaver Creek	T22N R31W S3 W2	2680	24 May 93	1550
Big Beaver Creek*	T22N R31W S5 NW4	2800	02 Jun 94	0930
Big Beaver Creek	T22N R31W S5 NW4	2800	04 Jun 94	2330
Bull River	T27N R33W S7 SE4SW4	2315	27 Apr 94	1500
Bull River, East Fork	T27N R32W S3 SW4	3050	13 Aug 94	1220
Bull River, N. Fork of E. Fork	T27N R32W S4 NE4	2780	13 Aug 94	1400
Bull River, Middle Fork	T28N R33W S14 NW4	2430	13 Aug 94	1715
Cataract Creek swamp	T24N R30W S16	3200	01 Aug 93	1000
Chippewa Creek	T28N R33W S19 SW4	2940	13 Aug 93	1610
Elk Lake	T25N R30W S25 NE4NE4	4220	25 May 93	1515
Engle Creek*	T26N R32W S26 NW4	2600	03 Jun 94	1315
Frog Lake	T25N R30W S28 SW4	4380	25 May 93	1100
Galena Creek*	T25N R31W S21 NW4	2800	26 Apr 94	1300
Lyons Gulch, West Fork	T25N R30W S28 NW4NE4	3560	12 Aug 94	1530
Marten Creek	T25N R33W S26 NW4SW4	2627	04 May 94	1730
Marten Creek, S. Branch	T25N R33W S31 NE4SE4	3224	27 Jul 94	1500
Marten Creek, Jct. S/N Forks	T25N R32W S31 SE4SE4	2350	27 Jul 94	1730
Noxon Reservoir at Trout Creek	T24N R31W S8 SW4	2375	30 Jul 93	1805
Orr Creek*	T26N R32W S15 NE4	2970	03 Jun 94	1400
Pilgrim Creek, West Fork	T26N R33W S31 NW4	3240	14 Aug 94	1205
Pilgrim Creek, Jct W/S Forks	T26N R33W S33 SW4SW4	2630	26 Apr 94	1520
Rock Creek Meadows	T26N R31W S6 NW4	3800	03 Jun 94	1630
Rush Lake	T24N R29W S19	5353	12 Jul 93	1830
Sims Creek*	T24N R30W S1 NE4	3100	02 Jun 94	1250

* Sites with no herps found during survey

Appendix 1 (cont). Sites surveyed during 1993-94 amphibian and reptile surveys.

Site	Location	Elevation	Date	Start Time
Cabinet District (cont.)				
Skeleton Creek	T26N R33W S31 SE4	3120	14 Aug 94	1100
Trout Creek, Pond 2 3/4 mi. NW.	T24N R32W S11 NE4	2375	30 Jul 93	1640
Tuscor Hill Pond NE	T25N R32W S16 SE4NW4	3560	03 Aug 93	1400
White Pine Creek	T23N R32W S24 NW4	3200	04 Jun 94	2000
White Pine Creek	T23N R32W S28 SE4	3763	14 Aug 94	1510
Willow Creek ponds	T25N R29W S36 NW4	3680	25 May 93	1717

* Sites with no herps found during survey

Appendix 1 (cont). Sites surveyed during 1993-94 amphibian and reptile surveys.

Site	Location	Elevation	Date	Start Time
Fisher River District				
Baree Creek	T25N R30W S5 SE4	3720	12 Aug 94	1410
Cody Lake, Upper	T29N R28W S6 NW4	4900	08 Sep 94	1500
Cody Lake, Middle	T29N R28W S6 NW4	4860	08 Sep 94	1445
Cody Lake, Lower	T29N R28W S6 NW4	4680	16 Jun 93	0930
Cody Lake, Lower	T29N R28W S6 NW4	4680	08 Sep 94	1600
Cripple Horse Creek*	T31N R27W S8 SE4	3800	28 Jul 94	1310
Elk Creek Headwaters	T26N R28W S26 NE4NE4	3650	15 Aug 94	1620
Five Mile Creek	T32N R28W S15 SW4	2640	16 Aug 94	1530
FS Rd 535, Pond by	T27N R28W S6 NW4NW4	3030	11 May 94	1430
Lost Lake (Plum Creek Land)	T29N R30W S13 W2	3810	17 Jun 94	1410
McGregor Lake outlet	T26N R26W S2 SE4	3890	11 May 94	1430
Silver Bow Creek	T25N R30W S17 NW4SE4	4097	12 Aug 94	1515
Silver Butte Fisher R. oxbow	T26N R29W S19 NE4SW4	3120	12 Aug 94	1200
Sinclair Creek, East pond	T30N R26W S20 S2	4800	19 Jun 93	1200
Sylvan Lake	T25N R29W S24 N2	3600	10 Jun 94	1430
Sylvan Lake	T25N R29W S24 N2	3600	23 Aug 94	0900
Weigel Creek	T32N R27W S12 SW4SW4	4240	28 Jul 94	1500
Weigel Creek & Wolf Crk Falls	T31N R27W S1	3600	09 Jun 93	2300
Wolf Creek Jct Weigel Creek	T31N R27W S1 E2	3600	09 Jun 93	1325

* Sites with no herps found during survey

APPENDIX 2.

AMPHIBIANS AND REPTILES

OBSERVED DURING SURVEYS OF THE

KOOTENAI NATIONAL FOREST

IN 1993-94

APPENDIX 2. Amphibians and reptiles observed during surveys of the Kootenai National Forest in 1993-94.

Site	Person	Total number of adults/juv of each species observed ¹						
	Hrs:min	AMMA	PLID	ASTR	BUBO	PSRE	RAPR	CHPI CHBO THSI THEL
Fortine District								
Alkali Lake, Pnd. W.	1:10						5	
Big Therriault Lake	1:00					2		
Big Therr. L. outlet	0:30			*				
Clarence Creek	0:30			*				
Divide Creek	0:40			*				
Fortine Creek Hdwts.	1:30				*	2*		1
Foundation Creek	0:30			*				
Hagadore Lake	1:15				*	2		
Lime Creek	0:30					2		
Louis Lake, Pnd N. of	1:00				*			
Murphy Lake	0:50					2		
Sunday Creek	1:30					3*		
Sunday Lake	1:00					2		
Turtle Lake	2:00				*		33	

* denotes site with breeding, i.e. tadpoles, larvae, or eggs present

APPENDIX 2 (cont). Amphibians and reptiles observed during surveys of the Kootenai National Forest in 1993-94.

Site	Person	Total number of adults/juv of each species observed									
	Hrs:min	AMMA	PLID	ASTR	BUBO	PSRE	RAPR	CHPI	CHBO	THSI	THEL
Three Rivers District											
Bad Medicine C. Pnd	1:40	*								*	
Basin Crk. Jct E/W Fk	0:45									1*	
Burnt Creek	0:30		*								
Burk Pond	2:20	*								7*	1
Hawkins Pond	1:25									7	
Hawkins Pond	1:00				1					*	
Hoskins Lake	1:40									18	1
Hoskins Lake	1:30	*								8	
Keeler Creek	2:00					1				4*	
Keeler Creek	0:30		*								1
Kilbrennan Lk. outlet	1:10									2	
Meadow Creek, S. Fk.	0:25		*								
Pete Creek	1:00									2*	1
Pete Creek Meadows	1:20	*								*	1
Spread Creek	0:50									*	
Spread Creek	0:30		*								
Yaak R., Whitetail C.	3:40	*								1*	
Yaak R. by Baldy Crk	1:30				8*					7	
Yaak R., E. Fork	1:00									7	
Yaak R., W. Fork	0:30		*								
Vinal Lake	3:00				300*	2				7	
Vinal Lake Rd. Pnds.	2:20	*								*	

* denotes site with breeding, i.e. tadpoles, larvae, or eggs present

APPENDIX 2 (cont). Amphibians and reptiles observed during surveys of the Kootenai National Forest in 1993-94.

Site	Person	Total number of adults/juv of each species observed									
	Hrs:min	AMMA	PLID	ASTR	BUBO	PSRE	RAPR	CHPI	CHBO	THSI	THEL
Rexford District											
Arnold's Pond	2:00					3			18*		
Big Creek, S.Fork	0:30			*							
Boulder Creek	0:40								2*		
Dodge Creek	0:30								2		
Horse Lakes	1:10				*				4*	1	
Horse Lakes	1:00			*					3*		
Lake Koocanusa, E.	0:30			1							
Lake Koocanusa, W.	0:30						6				
Lake Koocanusa, W.	0:15						1				
Lake Koocanusa, W.	0:15						2				
Lake Koocanusa, W.	0:20						1				
Lake Koocanusa, W.	0:15						1				
Lake Koocanusa, W.	0:15						1				
Lake Koocanusa, W.	0:15						1				
Tepee Lake	0:40			*							
Tepee Lake	1:15			*							
Tepee Lake, Pnd. E	0:50			*	*						
Tweed Creek	0:30										1

* denotes site with breeding, i.e. tadpoles, larvae, or eggs present

APPENDIX 2 (cont). Amphibians and reptiles observed during surveys of the Kootenai National Forest in 1993-94.

Site	Person	Total number of adults/juv of each species observed										
		Hrs:min	AMMA	PLID	ASTR	BUBO	PSRE	RAPR	CHPI	CHBO	THSI	THEL
Libby District												
Bear Creek		0:30	*									
Big Cherry Creek		0:25	*									
Blue Lake		1:00	*		6*	43*			3		1	
Blue Lake, Marsh E.		0:40	*		*	5*						
Blue Lake, Marsh E.		1:00	*			8*						
Bull Creek Bog		0:25				11						
Deep Creek Bog		0:45				6						
Flower Lake		2:00	*		30+*	8						
Flower Lake		1:15				2						
FS Rd 4768, Pond		1:00	*			2*						
FS Rd 4792 Pond		0:30			*	2						
Geiger Lake, Lower		1:15				2						
Howard Lake		1:00				1*					1	
LaFoe Lake		1:25			*	11*						
Lake Creek		0:50	*									
Leigh Creek		0:30		1*							1	
Libby Creek		0:50		3								
Libby Creek		1:00	*									
Loon Lake		1:30									2	
Pipe Creek, E. Fk.		1:35	*		*	*						
Ramsey Creek		0:50		1								
17 Mile Creek		0:30	*									

* denotes site with breeding, i.e. tadpoles, larvae, or eggs present

APPENDIX 2 (cont). Amphibians and reptiles observed during surveys of the Kootenai National Forest in 1993-94.

Site	Person	Total number of adults/juv of each species observed						
	Hrs:min	AMMA	PLID	ASTR	BUBO	PSRE	RAPR	CHPI CHBO THSI THEL
Cabinet District								
Big Beaver Creek	1:10						37	
Big Beaver Creek	0:30	2						
Bull River	1:50						2	
Bull River, E. Fork.	0:30			*				1
Bull River, N. Fk E. Fk	0:30			*				
Bull River, Middle Fk	0:45			*				
Cataract Creek Swamp	0:50						3*	
Chippewa Creek	0:20			*				
Elk Lake	0:20						13	
Frog Lake	2:30		3*				37*	1
Lyons Gulch, W. Fk.	0:45						5*	
Marten Creek	1:00	1						
Marten Creek, S. Br.	0:30			1*				1
Marten Creek, S/N Fks.	0:30						1	
Noxon Reservoir T.Crk.	0:40							
Pilgrim Creek, W. Fk.	0:30			*				
Pilgrim Crk. W/S Fks.	1:10						1	
Rock Creek Meadows	1:30				10		6*	2
Rush Lake	0:30		*				6+*	
Skeleton Creek	0:30			1*				
Trout Creek Pond	1:10				2*			

* denotes site with breeding, i.e. tadpoles, larvae, or eggs present

APPENDIX 2 (cont). Amphibians and reptiles observed during surveys of the Kootenai National Forest in 1993-94.

Site	Person	Total number of adults/juv of each species observed							
	Hrs:min	AMMA	PLID	ASTR	BUBO	PSRE	RAPR	CHPI	CHBO THSI THEL
Cabinet District (cont.)									
Tuscor Hill Pond	0:30	*				30*	2*?		2
White Pine Creek	2:30	1							
White Pine Creek	0:30			*					
Willow Creek Ponds	1:00						14*		1

* denotes site with breeding, i.e. tadpoles, larvae, or eggs present

APPENDIX 2 (cont). Amphibians and reptiles observed during surveys of the Kootenai National Forest in 1993-94.

Site	Person	Total number of adults/juv of each species observed			
	Hrs:min	AMMA	PLID	ASTR	BUBO PSRE RAPR CHPI CHBO THSI THEL
Fisher River District					
Baree Creek	0:30			*	
Cody Lake, Upper	0:15	*			
Cody Lake, Middle	0:45	*			
Cody Lake, Lower	0:30				7
Cody Lake, Lower	0:30				2
Elk Creek, Hdwaters	1:15				11
Five Mile Creek	0:45				1
FS Rd 535, Pond	1:00			1	*
Lost Lake	1:30	*			6
Silver Bow Creek	0:30			*	
Silver Butte Fisher R.	1:35	*			12
Sinclair Crk, E pond	0:40	*			2*
Sylvan Lake	2:00		1		27
Sylvan Lake	1:00				19
Weigel Creek	0:55				1
Weigel Cr. & Wolf Cr.	1:30	3			
Wolf Crk @ Weigel Crk	2:40	*			1*

AMMA=Ambystoma macrodactylum; PLID= Plethodon idahoensis; ASTR=Ascaphus truei; BUBO=Bufo boreas; PSRE= Pseudacris regilla; RAPR=Rana pretiosa; CHPI=Chrysemys picta; CHBO=Charina bottae; THSI=Thamnophis sirtalis; THEL=Thamnophis elegans.

* denotes site with breeding, i.e. tadpoles, larvae, or eggs present

APPENDIX 3.

AMPHIBIANS AND REPTILES

REPORTED FROM IN AND AROUND THE

KOOTENAI NATIONAL FOREST

Natural Heritage Program 01/18/1995
 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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LONG-TOED SALAMANDER

Flathead	.5 to 5 mil	8/14/1955	No	Museum Specimen T27N, R25W
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Flathead	< .5 mile.	6/28/1994	Yes	Observation Pond ca. 200 m N. of Louis Lake at Jct of FS RDs 865, 3780, and 3733.
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Lincoln	.5 to 5 mil	8/7/1988	No	Museum Specimen Ca. 3 Km S of Libby
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Lincoln	< .5 mile.	5/18/1994	No	Museum Specimen E. side of Lake Koocanusa on Hwy. 37. 1.3 mi. S. of bridge.
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Lincoln	< .5 mile.	8/12/1994	No	Museum Specimen Pond on E. side of Silver Butte Fisher River, ca.3.5 mi. S. of Hwy. 2
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Lincoln	< .5 mile.	7/29/1994	Yes	Museum Specimen Hagadore Lake, along FS RD 7006, ca. 1 mi. from junction with FS RD 5916.
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Lincoln	< .5 mile.	6/20/1994	Yes	Museum Specimen Blue Creek headwaters marsh
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Lincoln	< .5 mile.	6/17/1994	Yes	Observation Small pond along FS RD 4768, ca. 6 mi. W. of jct. with FS RD 533.
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Lincoln	< .5 mile.	6/18/1994	Yes	Observation Burk Pond, ca. 1 mi. E. of Hwy. 508 on FS RD 471.
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Lincoln	< .5 mile.	6/20/1994	Yes	Observation Blue Lake, along FS RD 615, ca. 7 mi. E. of Hwy 68.
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Lincoln	< .5 mile.	6/21/1994	Yes	Observation Horse Lakes (ponds), ca. 8 mi. E. of Hwy 68 on FS RD 336.
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Lincoln	< .5 mile.	6/28/1994	Yes	Observation Fortine Creek Headwaters above Twin Meadows along FS RD 36.
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Lincoln	< .5 mile.	5/17/1994	Yes	Museum Specimen Teepee Lake
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Lincoln	< .5 mile.	5/7/1994	Yes	Observation Pete Creek Meadows.
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Lincoln	< .5 mile.	4/28/1994	Yes	Observation Pond 50 yds. S. of Bad Medicine Campground on Bull Lake.
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County	Precision	Date	Breed	Data Type
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LONG-TOED SALAMANDER (continued)

Lincoln	< .5 mile.	7/14/1993	Yes	Observation Flower Lake
Lincoln	< .5 mile.	6/15/1993	Yes	Observation Marsh 1 mi. E. of Blue Lake, 3970 ft.
Lincoln	< .5 mile.	5/30/1993	Yes	Observation Horse Lake
Lincoln	< .5 mile.	5/30/1993	Yes	Observation Turtle Lake
Lincoln	< .5 mile.	6/9/1993	Yes	Observation Weigel Creek and Wolf Creek at jct. with Wiegell Creek.
Lincoln	< .5 mile.	5/29/1993	Yes	Observation Yaak River pond
Lincoln	< .5 mile.	6/17/1993	Yes	Observation Sinclair Creek ponds
Lincoln	< .5 mile.	9/8/1994	Yes	Observation Middle Cody Lake
Lincoln	< .5 mile.	6/10/1993	Yes	Observation Teepee Lake and marsh pond 0.75 mi. E. of Teepee Lake
Lincoln	< .5 mile.	5/30/1993	Yes	Observation Bog at headwaters of E. Fork Pipe Creek
Lincoln	< .5 mile.	6/17/1994	Yes	Observation Lost Lake off FS RD 534
Lincoln	< .5 mile.	9/8/1994	Yes	Observation Upper Cody Lake
Lincoln	< .5 mile.	9/10/1994	Yes	Observation Hoskins Lake
Lincoln	< .5 mile.	5/8/1994	Yes	Observation Vinal Lake Road Pond No 1 & No. 2
Lincoln	.5 to 5 mil	/ /1992	No	Museum Specimen Sunday Creek meadows, 4800 ft.

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 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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LONG-TOED SALAMANDER (continued)

Sanders	5 to 10 mil	5/26/1973	No	Museum Specimen
Lynch Creek				

Sanders	.5 to 5 mil	/ / 0	No	Museum Specimen
Thompson Falls				

Sanders	< .5 mile.	8/ 3/1993	Yes	Observation
Tuscar Hill Pond NE				

Sanders	< .5 mile.	8/ 1/1993	Yes	Observation
Grouse Lake pond, ca. 50 m N. of lake.				

Sanders	< .5 mile.	5/29/1993	Yes	Observation
Frog Lake				

Sanders	< .5 mile.	7/12/1993	Yes	Observation
Rush Lake				

COEUR D'ALENE SALAMANDER

(See element occurrence records Appendix 5)

ROUGHSKIN NEWT

Sanders	.5 to 5 mil	/ / 0	No	Museum Specimen
Thompson Falls				

TAILED FROG

Lincoln	< .5 mile.	8/11/1994	No	Observation
Ramsey Creek, 3 mi. S. of FS RD 2317 and then 6201.				

Lincoln	< .5 mile.	8/11/1994	Yes	Observation
Leigh Creek, ca. 8 mi. SW of Hwy. 2 on FS RD 278 and 867.				

Lincoln	< .5 mile.	8/12/1994	Yes	Observation
Baree and Silver Bow Creeks ca. 12 mi. SW of Hwy 2 on FS RD 148.				

Lincoln	< .5 mile.	7/17/1994	Yes	Observation
17 Mile Creek at jct. with Flattail Creek, ca. 3 mi. W. of Loon Lake				

Lincoln	< .5 mile.	7/15/1994	Yes	Observation
South Fork of Meadow Creek. Where FS RD 524 crossed the creek.				

Lincoln	< .5 mile.	7/15/1994	Yes	Museum Specimen
Spread Creek, along FS RD 435 then 591, ca. 7.5 mi. NW of jct with FS RD 92				

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County	Precision	Date	Breed	Data Type
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TAILED FROG (continued)

Lincoln	< .5 mile.	6/ 8/1994	Yes	Museum Specimen Lake Creek at Lake Creek Campground, ca. 6 mi. W. of Hwy. 2 on FS RD 231.
Lincoln	< .5 mile.	6/16/1994	No	Museum Specimen Libby Creek, along FS RD 231, ca. 3 mi. S. of Hwy. 2
Lincoln	< .5 mile.	6/21/1994	Yes	Museum Specimen South fork of Big Creek, ca. 2 mi. S. of Copeland Creek on FS RD 336.
Lincoln	< .5 mile.	7/14/1994	Yes	Observation Keeler Creek.
Lincoln	< .5 mile.	7/17/1994	Yes	Observation Burnt Creek
Lincoln	< .5 mile.	7/30/1994	Yes	Museum Specimen Clarence Creek, where it crosses FS RD 7036;
Lincoln	< .5 mile.	7/31/1994	Yes	Observation Bluebird (or Wigwam) Creek, ca. 50 m below outlet of Big Therriault Lake.
Lincoln	< .5 mile.	8/ 1/1994	Yes	Observation Foundation Creek, where crossed FS RD 319.
Lincoln	< .5 mile.	7/31/1994	Yes	Observation Divide Creek where crossed FS RD 319
Lincoln	< .5 mile.	6/ 9/1994	Yes	Observation Libby Creek, Public Gold Panning Site on GS RD 231
Lincoln	< .5 mile.	8/11/1994	Yes	Observation Bear Creek, ca. 13 mi. SW of HWY 2 on FS RD 278.
Lincoln	< .5 mile.	8/11/1994	Yes	Observation Big Cherry Creek, ca. 11 mi. SW of HWY 2 on FS RD 278 and 4785
Lincoln	< .5 mile.	8/12/1994	No	Observation FS RD 4779, ca. 100 m NW of Howard Lake Campground
Lincoln	< .5 mile.	7/16/1994	Yes	Observation West Fork of Yaak River where crossed FS RD 338
Lincoln	.5 to 5 mil	5/23/1993	No	Museum Specimen N. Fork Callahan Creek at Jill Creek confluence, 2920 ft.

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County	Precision	Date	Breed	Data Type
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TAILED FROG (continued)

Lincoln	.5 to 5 mil	5/30/1993	No	Museum Specimen Little North Fork of Big Creek, 2900 ft.
Lincoln	< .5 mile.	9/18/1991	No	Museum Specimen 4th of July Creek
Lincoln	< .5 mile.	9/12/1991	Yes	Museum Specimen W. Fork Yaak River
Lincoln	< .5 mile.	9/19/1991	Yes	Museum Specimen Poorman Creek
Lincoln	< .5 mile.	9/27/1991	Yes	Museum Specimen Rock Creek.
Sanders	.5 to 5 mil	7/28/1958	No	Museum Specimen Big Rock Creek, Ca. 30 mi. N. of SR200 on the Thompson River Rd.
Sanders	.5 to 5 mil	6/ 7/1988	No	Observation On East Thompson River Rd. (private), 10.5 mi. NE of SR 200.
Sanders	.5 to 5 mil	6/ 6/1988	No	Observation Sims Creek
Sanders	.5 to 5 mil	8/17/1991	No	Observation Ca. 10 mi. NW of Plains; Weeksville/Spring Creek
Sanders	.5 to 5 mil	7/16/1990	No	Observation Marten Creek, at edge of stream.
Sanders	.5 to 5 mil	8/17/1990	No	Observation Vermillion River, at edge of stream
Sanders	< .5 mile.	8/13/1994	Yes	Museum Specimen E. Fork of Bull River, Ca. 6 me. E. of Hwy. 56 on FS RD 410.
Sanders	< .5 mile.	8/14/1994	Yes	Museum Specimen White Pine Creek. ca. 11 mi. W. of Hwy. 200 on FS RD 215.
Sanders	< .5 mile.	7/27/1994	Yes	Museum Specimen Small tributary of S. branch of Marten Creek
Sanders	< .5 mile.	8/13/1994	Yes	Observation Chippewa Creek.

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County	Precision	Date	Breed	Data Type
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TAILED FROG (continued)

Sanders	< .5 mile.	8/14/1994	Yes	Observation Skeleton Creek
Sanders	< .5 mile.	9/14/1993	Yes	Observation Walk up Beaver Creek to 3400' elevation where old road crosses creek.
Sanders	< .5 mile.	8/30/1993	Yes	Observation Up Beaver Cr. Rd. #152 to Emma Cr. Trailhead (#725). Take trail to 4120 ft.
Sanders	< .5 mile.	9/2/1993	Yes	Observation Up Beaver Creek Road #152 to S. Br. Beaver Cr. confluence.
Sanders	< .5 mile.	9/8/1993	Yes	Observation Cub Creek
Sanders	< .5 mile.	9/13/1993	Yes	Observation Walk up Beaver Creek to 3810' elevation.
Sanders	< .5 mile.	10/4/1993	No	Observation Take FS RD 2213 to draw (tributary of N. Br. Marten Cr.) at 4600'.
Sanders	< .5 mile.	8/19/1993	Yes	Observation Rd. 2722 to Middle Fork Bull Trailhead, 100' upstream on 1st creek crossing
Sanders	< .5 mile.	8/13/1994	Yes	Observation N. Fork of the E. Fork of Bull River, ca. 5 mi. E. of HWY 56 on FS RD 410
Sanders	< .5 mile.	8/13/1994	Yes	Museum Specimen Middle fork of Bull River, ca. 2.5 mi. W. of HWY 56 on FS RD 410
Sanders	< .5 mile.	8/14/1994	Yes	Observation West fork of Pilgrim Creek, ca. 8 mi. W. of Noxon
Sanders	.5 to 5 mil	7/16/1990	No	Observation Marten Creek, at edge
Sanders	.5 to 5 mil	8/17/1990	No	Observation Vermillion River
Sanders	< .5 mile.	9/30/1991	Yes	Museum Specimen Swamp Creek
Sanders	< .5 mile.	9/30/1991	Yes	Museum Specimen North Fork McKay Creek

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County	Precision	Date	Breed	Data Type
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TAILED FROG (continued)

Sanders	< .5 mile.	10/ 1/1991	Yes	Museum Specimen
South Branch Marten Creek				

Sanders	< .5 mile.	10/ 3/1991	Yes	Museum Specimen
Deep Creek				

WESTERN TOAD

Flathead	.5 to 5 mil	7/13/1949	No	Observation
Ashley Creek near Marion.				

Flathead	.5 to 5 mil	7/16/1949	No	Observation
Rogers Lake near Marion.				

Flathead	< .5 mile.	6/20/1974	Yes	Specimen Reported
Lake Rogers				

Lincoln	.5 to 5 mil	6/15/1949	No	Observation
Pete Creek Meadows near Yaak.				

Lincoln	< .5 mile.	6/ 1/1992	No	Observation
Big Therriault Lake up the Grave Creek Drainage Road				

Lincoln	< .5 mile.	6/10/1994	No	Observation
Sylvan Lake, ca. 15 mi. S. of Hwy. 2 on FS RD 154.				

Lincoln	< .5 mile.	6/16/1994	No	Observation
FS RD 278, ca. 2 mi. S. of Hwy. 2.				

Lincoln	< .5 mile.	6/20/1994	Yes	Museum Specimen
Blue Lake, along FS RD 615, ca. 7 mi. E. of Hwy 68.				

Lincoln	< .5 mile.	7/14/1993	Yes	Observation
Flower Lake				

Lincoln	< .5 mile.	6/15/1993	Yes	Observation
Marsh 1 mi. E. of Blue Lake, 3970 ft.				

Lincoln	< .5 mile.	5/30/1993	Yes	Observation
Horse Lake				

Lincoln	< .5 mile.	6/10/1993	Yes	Observation
Marsh pond 0.75 mi. E. of Teepee Lake.				

Lincoln	< .5 mile.	7/16/1994	No	Observation
Hawkins Pond				

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County	Precision	Date	Breed	Data Type
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WESTERN TOAD (continued)

Lincoln	< .5 mile.	5/30/1993	Yes	Observation
Yaak River backwater near Baldy Creek				

Lincoln	< .5 mile.	7/9/1993	Yes	Observation
Deep Creek bog				

Lincoln	< .5 mile.	5/30/1993	Yes	Observation
Bog at headwaters of E. Fork Pipe Creek				

Lincoln	< .5 mile.	9/10/1994	Yes	Observation
Vinal Lake				

Lincoln	< .5 mile.	6/18/1994	Yes	Observation
LaFoe Lake (Ponds)				

Sanders	.5 to 5 mil	7/25/1950	No	Observation
Fishtrap Lake				

PACIFIC CHORUS FROG

Flathead	< .5 mile.	5/15/1994	No	Observation
Sunday Lake				

Flathead	< .5 mile.	6/20/1974	Yes	Observation
Lake Rogers				

Lincoln	< .5 mile.	6/20/1994	Yes	Museum Specimen
Marsh 1 mi. E. of Blue Lake, 3970 ft.				

Lincoln	< .5 mile.	5/16/1994	No	Observation
Arnolds Pond				

Lincoln	< .5 mile.	4/29/1994	No	Museum Specimen
Keeler Creek, 4 artificial ponds				

Lincoln	< .5 mile.	5/11/1994	No	Observation
Pond adj. to FS RD 535, 2 mi. SE of Jct. with FS RD 763.				

Lincoln	< .5 mile.	9/10/1994	No	Observation
Vinal Lake				

Lincoln	< .5 mile.	9/10/1994	No	Observation
At bridge over S. Fork Yaak River				

Sanders	< .5 mile.	6/3/1994	No	Observation
Rock Creek Meadows. Ca. 2 mi. from the trailhead at end of FS RD 150A.				

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County	Precision	Date	Breed	Data Type
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PACIFIC CHORUS FROG (continued)

Sanders	< .5 mile.	8/3/1993	Yes	Observation
Tuscar Hill Pond NE				

Sanders	< .5 mile.	7/30/1993	Yes	Observation
2.75 mi. W. of Trout Creek town.				

BULLFROG

Lincoln	5 to 10 mil	7/ /1994	No	Observation
Swamp Creek Rd. Pond on Bob Tuma Property.				

NORTHERN LEOPARD FROG

Flathead	< .5 mile.	6/20/1974	Yes	Specimen Reported
Lake Rogers				

Lincoln	.5 to 5 mil	/ /1964	No	Observation
3 miles N. of Rexford				

Sanders	.5 to 5 mil	/ /1964	No	Observation
2 miles N. of Noxon				

SPOTTED FROG

Flathead	< .5 mile.	9/7/1994	No	Observation
Mollvec Survey site, ca. 6 mi. E. of Stryker on Stillwater River				

Flathead	< .5 mile.	9/7/1994	No	Observation
Sunday Creek tributary				

Flathead	< .5 mile.	6/20/1974	Yes	Specimen Reported
Lake Rogers				

Lincoln	.5 to 5 mil	/ /1964	No	Observation
3 miles N. of Rexford				

Lincoln	.5 to 5 mil	8/1/1956	No	Museum Specimen
Dickey Lake, near Eureka				

Lincoln	.5 to 5 mil	7/29/1922	No	Museum Specimen
Libby				

Lincoln	< .5 mile.	8/12/1994	No	Museum Specimen
Pond on E. side of Silver Butte Fisher River, ca. 3.5 mi. S. of Hwy. 2				

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 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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SPOTTED FROG (continued)

Lincoln	< .5 mile.	8/15/1994	No	Observation Headwaters of Elk Creek, ca. 12 mi. S. of Hwy. 2 of FS RD 535 and 4422.
Lincoln	< .5 mile.	8/16/1994	No	Observation Five Mile Creek, ca. 2.5 mi. W. of Hwy 37 on FS RD 48.
Lincoln	< .5 mile.	8/17/1994	No	Museum Specimen Dodge Creek, ca. 7 mi. W. of Lake Koocanusa (Hwy 92) on FS RD 470.
Lincoln	< .5 mile.	7/29/1994	No	Museum Specimen Hagadore Lake, along FS RD 7006, ca. 1 mi. from junction with FS RD 5916.
Lincoln	< .5 mile.	7/28/1994	No	Museum Specimen Weigel Creek, along FS RD 6790, ca. 1 mi. S. of junction with FS RD 4427.
Lincoln	< .5 mile.	7/15/1994	Yes	Observation Spread Creek, along FS RD 435, ca. 6.5 mi. NW of jct. with FS RD 92.
Lincoln	< .5 mile.	6/11/1994	No	Observation Lower Geiger Lake. ca. 2 mi. up from trailhead of trail 656.
Lincoln	< .5 mile.	6/10/1994	No	Museum Specimen Sylvan Lake, ca. 15 mi. S. of Hwy. 2 on FS RD 154.
Lincoln	< .5 mile.	5/ 8/1994	Yes	Observation Vinal Lake Road Pond No. 2.
Lincoln	< .5 mile.	5/ 7/1994	No	Observation 1015 ft.
Lincoln	< .5 mile.	6/17/1994	Yes	Observation Small pond along FS RD 4768, ca. 6 mi. W. of jct. with FS RD 533.
Lincoln	< .5 mile.	6/18/1994	Yes	Observation Burk Pond, ca. 1 mi. E. of Hwy. 508 on FS RD 471.
Lincoln	< .5 mile.	6/18/1994	Yes	Observation LaFoe Lake (Ponds).
Lincoln	< .5 mile.	6/20/1994	Yes	Observation Blue Lake, along FS RD 615, ca. 7 mi. E. of Hwy 68.
Lincoln	< .5 mile.	6/21/1994	Yes	Observation Horse Lakes (ponds), ca. 8 mi. E. of Hwy 68 on FS RD 336.

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SPOTTED FROG (continued)

Lincoln	< .5 mile.	6/27/1994	Yes	Observation Boulder Creek, ca. 8.5 mi. W. of jct of FS RDs 337 and 92.
Lincoln	< .5 mile.	6/27/1994	Yes	Observation Basin Creek at Jct of East and West Forks.
Lincoln	< .5 mile.	6/28/1994	No	Observation Lime Creek along FS RD 36, ca. 3 mi. S. of Trego.
Lincoln	< .5 mile.	6/28/1994	Yes	Observation Fortine Creek Headwaters above Twin Meadows along FS RD 36.
Lincoln	< .5 mile.	7/31/1994	No	Observation On Gravel Creek ca. 0.3 mi. above private bridge.
Lincoln	< .5 mile.	8/20/1994	Yes	Observation Hawkins Pond
Lincoln	< .5 mile.	8/21/1994	No	Observation Yaak Falls, 100 m above in river, 2400 ft.
Lincoln	< .5 mile.	5/14/1994	Yes	Museum Specimen Sunday Creek Beaver Ponds.
Lincoln	< .5 mile.	5/10/1994	No	Observation Flower Lake
Lincoln	< .5 mile.	5/10/1994	Yes	Museum Specimen Howard Lake
Lincoln	< .5 mile.	5/ 8/1994	No	Museum Specimen Hoskins Lake
Lincoln	< .5 mile.	5/ 7/1994	Yes	Museum Specimen Beaver ponds 7 mi. along Pete Creek Meadows Road
Lincoln	< .5 mile.	5/ 6/1994	No	Museum Specimen Outlet of Kilbrennan Lake, ca. 0.5 mi. below the lake and campground.
Lincoln	< .5 mile.	4/28/1994	Yes	Observation Pond 50 yds. S. of Bad Medicine Campground on Bull Lake.
Lincoln	< .5 mile.	7/14/1993	Yes	Observation Flower Lake

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SPOTTED FROG (continued)

Lincoln	< .5 mile.	6/15/1993	Yes	Observation Marsh 1 mi. E. of Blue Lake, 3970 ft.
Lincoln	< .5 mile.	5/30/1993	Yes	Observation Horse Lake
Lincoln	< .5 mile.	8/ 1/1994	No	Observation Big Therriault Lake inlet.
Lincoln	< .5 mile.	8/ 1/1994	No	Observation Weasel Lake.
Lincoln	< .5 mile.	8/ 1/1994	No	Observation Murphy Lake on Hwy. 93, ca. 3 mi. S. of Fortine.
Lincoln	< .5 mile.	6/16/1993	No	Observation Lower Cody Lakes
Lincoln	< .5 mile.	7/ 9/1993	No	Observation Deep Creek bog
Lincoln	< .5 mile.	7/ 9/1993	No	Observation Bull Creek bog
Lincoln	< .5 mile.	5/16/1994	Yes	Observation Arnolds Pond
Lincoln	< .5 mile.	5/29/1993	Yes	Observation Yaak River pond
Lincoln	< .5 mile.	4/29/1994	Yes	Museum Specimen Keeler Creek, 4 artificial ponds
Lincoln	< .5 mile.	6/17/1993	Yes	Observation Sinclair Creek ponds
Lincoln	< .5 mile.	5/11/1994	Yes	Observation Pond adj. to FS RD 535, 2 mi. SE of Jct. with FS RD 763.
Lincoln	< .5 mile.	6/ 9/1993	Yes	Observation Wolf Creek at jct. with Wiegel Creek.
Lincoln	< .5 mile.	5/30/1993	Yes	Observation Bog at headwaters of E. Fork Pipe Creek

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SPOTTED FROG (continued)

Lincoln	< .5 mile.	6/20/1994	Yes	Museum Specimen Blue Creek Headwaters Marsh, at jct. of FS RDs 615 & 6236
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Lincoln	< .5 mile.	7/9/1993	No	Observation Pond by FS RD 4792
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Lincoln	< .5 mile.	5/7/1994	Yes	Observation Pete Creek Meadows, mi. 10 from HWY 508 on FS RD 92
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Lincoln	< .5 mile.	5/9/1994	Yes	Observation Loon Lake
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Lincoln	< .5 mile.	6/27/1994	No	Observation East Fork of Yaak River along FS RD 92
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Lincoln	< .5 mile.	6/17/1994	No	Observation Lost Lake off FS RD 534
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Lincoln	< .5 mile.	8/9/1994	No	Observation Wolf Creek
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Lincoln	< .5 mile.	9/10/1994	No	Observation Vinal Lake
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Lincoln	< .5 mile.	9/8/1994	No	Observation Lower Cody Lake
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Lincoln	< .5 mile.	5/30/1993	Yes	Observation Yaak River backwater near Baldy Creek
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Lincoln	< .5 mile.	8/23/1994	No	Observation Sylvan Lake
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Lincoln	.5 to 5 mil	7/16/1993	No	Museum Specimen Flower Lake, 3830 ft.
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Sanders	.5 to 5 mil	/ /1964	No	Observation 2 miles N. of Noxon
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Sanders	.5 to 5 mil	9/19/1892	No	Museum Specimen Thompson Falls
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Sanders	< .5 mile.	8/12/1994	Yes	Observation Beaver Pond at Headwaters of West Fork of Lyons Gulch
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SPOTTED FROG (continued)

Sanders	< .5 mile.	7/27/1994	No	Observation
Marten Creek at junction of the S. and N. Forks, ca. 0.5 mi. S. on FSRD 151				
Sanders	< .5 mile.	4/26/1994	No	Museum Specimen
Jct. of W. and S. fork of Pilgrim Creek.				
Sanders	< .5 mile.	5/ 6/1994	Yes	Observation
On NW corner of Swamp Creek Bay at Hwy. 200 and up Swamp Creek.				
Sanders	< .5 mile.	4/27/1994	No	Museum Specimen
Oxbow on Bull River, ca. 0.5 mi. SE of Bull River Guard Station.				
Sanders	< .5 mile.	6/ 3/1994	Yes	Museum Specimen
Rock Creek Meadows. Ca. 2 mi. from the trailhead at end of FS RD 150A.				
Sanders	< .5 mile.	8/ 3/1993	No	Observation
Tuscar Hill Pond NE				
Sanders	< .5 mile.	8/ 1/1993	Yes	Observation
Hike up Freeze Out Creek on old logging road.				
Sanders	< .5 mile.	5/27/1993	No	Observation
Big Beaver Creek				
Sanders	< .5 mile.	5/29/1993	Yes	Observation
Frog Lake				
Sanders	< .5 mile.	5/27/1993	No	Observation
Willow Creek ponds.				
Sanders	< .5 mile.	8/ 1/1993	Yes	Observation
Catatact Creek Swamp				
Sanders	< .5 mile.	7/12/1993	Yes	Observation
Rush Lake				
Sanders	< .5 mile.	5/25/1993	No	Observation
Elk Lake				

PAINTED TURTLE

Flathead	.5 to 5 mil	/ / 0	No	Observation
Ashley Lake				
Flathead	< .5 mile.	6/20/1974	No	Observation
Lake Rogers				

Natural Heritage Program 01/18/1995
 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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PAINTED TURTLE (continued)

Lincoln	.5 to 5 mil	8/ /1955	No	Museum Specimen Kootenai River, 3 miles N of Rexford
Lincoln	< .5 mile.	6/18/1994	No	Observation Burk Pond, ca. 1 mi. E. of Hwy. 508 on FS RD 471.
Lincoln	< .5 mile.	8/23/1994	No	Observation Middle Thompson Lake, W. of campground.
Lincoln	< .5 mile.	5/ 8/1994	No	Observation Hoskins Lake
Lincoln	< .5 mile.	5/30/1993	No	Observation West of Alkali Lake
Lincoln	< .5 mile.	5/30/1993	No	Observation Turtle Lake
Lincoln	5 to 10 mil	/ / 0	No	Specimen Reported See map.

NORTHERN ALLIGATOR LIZARD

Lincoln	< .5 mile.	5/ 7/1994	No	Observation 5 miles up Big Creek above Lake Koocanusa
Lincoln	< .5 mile.	8/15/1994	No	Observation Off Callahan R. Rd near Jct with Big 8 Mine Rd.
Lincoln	< .5 mile.	7/15/1994	No	Observation Troy Catholic Church, E. side of town.
Lincoln	< .5 mile.	7/15/1993	No	Observation Cliff Atkin residence, off FS RD 331, ca. 1 mi. E. of Troy.
Sanders	< .5 mile.	7/29/1993	No	Observation Along S. Fork Marten Creek Road where tallus is just above road.
Sanders	< .5 mile.	8/ 2/1993	No	Observation Drive up Swamp Cr. Rd. from Hwy. 200 to trailhead. Hike up trail.

Natural Heritage Program 01/18/1995
 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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WESTERN SKINK

Lincoln < .5 mile. 8/21/1994 No Observation
 Kootenai River, 1820 ft.

Sanders < .5 mile. 5/ /1993 No Observation
 above the Bull River (west side)

RUBBER BOA

Lincoln < .5 mile. 8/12/1994 No Observation
 FS RD 4779, ca. 100 m NW of Howard Lake Campground

Lincoln < .5 mile. 6/24/1994 No Observation
 Cutoff Rd. between Yaak R. Rd. and HWY 2; 2400 ft.

RACER

Lincoln 5 to 10 mil / / 0 No Specimen Reported
 See map.

Lincoln 5 to 10 mil / / 0 No Specimen Reported
 See map.

Lincoln 5 to 10 mil / / 0 No Specimen Reported
 See map.

GOPHER SNAKE

Lincoln < .5 mile. 6/ 5/1993 No Observation
 Back yard of A. Dueker residence.

Sanders .5 to 5 mil / / 0 No Observation
 Hot Springs

WESTERN TERRESTRIAL GARTER

Flathead .5 to 5 mil 8/18/1995 No Museum Specimen
 Upper Stillwater Lake

Flathead 5 to 10 mil / / 0 No Specimen Reported
 See map.

Flathead < .5 mile. 6/20/1974 Yes Observation
 Dahl Lake

Lincoln < .5 mile. 5/18/1994 No Museum Specimen
 Tweed Creek, E. side of Lake Koocanusa on Hwy. 37.

Natural Heritage Program 01/18/1995
 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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WESTERN TERRESTRIAL GARTER (continued)

Lincoln	< .5 mile.	8/11/1994	No	Observation Leigh Creek, ca. 8 mi. SW of Hwy. 2 on FS RD 278 and 867.
Lincoln	< .5 mile.	7/14/1994	No	Observation Keeler Creek, FS RD 473, ca. 2 mi. W. of jct. with FS RD 2201.
Lincoln	< .5 mile.	6/18/1994	No	Observation LaFoe Lake (Ponds).
Lincoln	< .5 mile.	6/20/1994	No	Observation Blue Lake, along FS RD 615, ca. 7 mi. E. of Hwy 68.
Lincoln	< .5 mile.	7/31/1994	No	Observation On Gravel Creek ca. 0.1 mi. below old washed-out bridge on abandoned road.
Lincoln	< .5 mile.	8/20/1994	No	Observation Yaak River at crossing of FS RD 92.
Lincoln	< .5 mile.	6/18/1994	No	Observation FS RD 4712, 0.3 & 0.7 mile from jct with FS RD 471
Lincoln	> 10 miles.	6/25/1954	No	Museum Specimen W of Libby, Kootenai River Forest
Sanders	< .5 mile.	7/27/1994	No	Museum Specimen Marten Creek at junction of the S. and N. Forks, ca. 0.5 mi. S. on FSRD 151
Sanders	< .5 mile.	5/ 6/1994	No	Observation On trail up Swamp Creek.
Sanders	< .5 mile.	7/28/1994	No	Observation 0.1 mi. below USFS bridge, 1500 ft.
Sanders	< .5 mile.	6/ 3/1994	No	Museum Specimen Rock Creek Meadows. Ca. 2 mi. from the trailhead at end of FS RD 150A.
Sanders	< .5 mile.	8/ 2/1993	No	Observation 1 mi. above Vermilion Bay on Vermilion R. Road.

COMMON GARTER SNAKE

Flathead	5 to 10 mil	/ / 0	No	Specimen Reported See map.
Flathead	< .5 mile.	6/20/1974	No	Observation Lake Rogers

Natural Heritage Program 01/18/1995
 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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COMMON GARTER SNAKE (continued)

Flathead	< .5 mile.	6/20/1974	No	Observation Lake Rogers
Flathead	< .5 mile.	7/ /1949	No	Specimen Reported Lake Rogers, also sec. 29, 31, and 32
Lincoln	.5 to 5 mil	6/25/1954	No	Museum Specimen 4 miles SE of Libby
Lincoln	< .5 mile.	8/12/1994	No	Observation Pond on E. side of Silver Butte Fisher River, ca.3.5 mi. S. of Hwy. 2
Lincoln	< .5 mile.	6/20/1994	No	Museum Specimen Blue Lake, along FS RD 615, ca. 7 mi. E. of Hwy 68.
Lincoln	< .5 mile.	6/28/1994	No	Observation Fortine Creek Headwaters above Twin Meadows along FS RD 36.
Lincoln	.5 to 5 mil	5/ 9/1004	No	Museum Specimen Loon Lake
Lincoln	< .5 mile.	5/ 7/1994	No	Observation Beaver ponds 7 mi. along Pete Creek Meadows Road
Lincoln	< .5 mile.	5/30/1993	No	Observation Horse Lake
Lincoln	< .5 mile.	5/ 7/1994	No	Observation Pete Creek Meadows. FS RD 338 mi. 10 from HWY 508 (FS RD 92)
Sanders	< .5 mile.	8/12/1994	No	Observation Beaver Pond at Headwaters of West Fork of Lyons Gulch
Sanders	< .5 mile.	8/13/1994	No	Observation E. Fork of Bull River, Ca. 6 me. E. of Hwy. 56 on FS RD 410.
Sanders	< .5 mile.	6/ 3/1994	No	Observation Rock Creek Meadows. Ca. 2 mi. from the trailhead at end of FS RD 150A.
Sanders	< .5 mile.	8/ 3/1993	No	Observation Tuscar Hill Pond NE
Sanders	< .5 mile.	5/24/1993	No	Observation lower White Pine Creek road T24N R31W Sect 15

APPENDIX 4.

DATA SHEETS USED FOR

AMPHIBIAN AND REPTILE

SURVEYS AND OBSERVATIONS

AMPHIBIAN SURVEY DATA SHEET: INSTRUCTIONS This data sheet is designed to facilitate quick recording of data from field surveys of amphibians and their habitats. It appears complex and intimidating, but actually can be completed in a short amount of time after a minimum amount of training. Many variables require only the correct choice to be circled, and the remaining variables are numerical and easy to determine. The data sheet is divided into four sections, divided by double lines. Each section describes a cohesive set of variables. In addition the back of the sheet includes a grid for a rough sketch of the site and space for additional comments. The map is optional, but the future value of the data is enhanced if it is supplied.

SECTION 1 - LOCALITY *These data are essential. Many amphibian surveys have been hampered by the inability to relocate exact locations in the historical record. Some of this information can be completed in the office after the survey.*

DATE: Use the format DD-MMM-YY (e.g., 05-APR-92).

BEGIN TIME: List the time survey of habitat for amphibians began in 24 hour format.

END TIME: List the time the survey ended in 24 hour format. (The total time (END TIME - BEGIN TIME) should reflect only the amount of time spent searching for amphibians. Total time plus number of observers may be used to assess relative abundance.)

OBSERVERS: List names or initials of all persons involved in searching.

LOCALITY: Describe the specific geographic location of the site. Use air distance in two directions (e.g., 5km N and 7.5 km W) of a map landmark that likely will not change (distance from a large town or city is not all that helpful).

STATE: Use the 2-letter abbreviation.

COUNTY:

MAP NAME: List the name of the U.S.G.S. quadrangle or other map used to locate the site.

OWNER: List the public land manager (e.g., Roosevelt Nat. Forest or Rocky Mtn NP), or name of the owner if the site is on private land (listing the owner's name will make it clear that you did not trespass to survey the site).

ELEVATION: Circle the scale used; meters are preferred.

T: township R: range S: section

SECTION DESCRIPTION: Describe the location of the site within the section (e.g., SE ¼ or NE ¼ of SE ¼)

UTM ZONE, NORTHING, EASTING:
Universal Transverse Mercator coordinates

are preferred over longitude and latitude. The UTM zone is listed on newer topographic maps. If you are using a map without the UTM grid, substitute latitude for Northing and longitude for Easting.

SECTION 2 - SPECIES DATA *List all amphibian species observed. If garter snakes are seen, list them here also.*

SPECIES: Use the scientific name. Convenient shorthand is to use a 4-letter code made up of the first 2 letters of the genus and species (e.g., *Rana sylvatica* would be RASY).

ADULTS/JUVENILES: Indicate presence with a check, but numbers seen are more valuable data

CALLING?: Circle Y if frogs are vocalizing in a breeding chorus, or if a breeding aggregation of species that don't call (e.g., *Bufo boreas*) is observed.

TADPOLES/LARVAE: Same as for adults/juveniles

EGG MASSES: Same as above. Numbers of egg masses are especially valuable data. If possible, describe the developmental stage of eggs in the space for additional notes on the back of the form.

METHOD: Circle how observations were made: **VISUAL/AURAL** ID - species identified without picking it up, either by sight or by recognition of the breeding call; **HAND COLLECTED** - animal was picked up and identified in the field (higher confidence than visual id); **DIP NET/SEINE** - the usual method of collection for larvae; **TRAPPED** - minnow-type traps are also used for larvae; **VOUCHER**

COLLECTED?: circle yes or no (voucher specimens are recommended for every site, especially if identification is uncertain and for larvae). Indicate voucher status in addition to method used.

FISH PRESENT?: If yes, list species if you

can. Circle the question marks if you are not certain, but suspect that fish are present.

ENTIRE SITE SEARCHED?: If no, list either the meters of shoreline or the area (m²) of habitat (e.g., amount of wet meadow) searched.

SECTION 3 - PHYSICAL AND CHEMICAL DATA *Water chemistry data are difficult to collect accurately without thorough planning and quality equipment; these data are optional. Weather data are important for determining the quality of the observations (e.g., was an absence of amphibians due to observations made during a blizzard?)*

WEATHER, WIND: Indicate atmospheric conditions

AIR TEMPERATURE: Take at chest height in shade. The Celsius scale is preferred.

WATER TEMPERATURE: Take 1 meter from margin and at 2 cm depth, or where egg masses are observed.

COLOR: This is a qualitative assessment of whether the water clear or tea-colored from organic (humic) acids.

TURBIDITY: This is a qualitative assessment of whether the water clear or clouded from suspended particulate matter.

SECTION 4 - HABITAT DESCRIPTION *These data are important for developing hypotheses to explain changes in abundance of amphibians. This section needs to be filled out only once for each site (a reasonable amphibian survey should include at least 2 - 3 visits to each site in one season).*

ORIGIN: Decide whether the lake is a natural geologic formation or man-made. Bodies of water enlarged by a dam are problematic. List them as man-made, but add an explanation in the space for additional notes on the back of the form.

DRAINAGE: Circle whether the site has permanent drainage, no drainage, or

occasional drainage. Determining the potential for occasional drainage requires judgement. Look for clues in the topography and vegetation.

DESCRIPTION: Decide how best to describe the site. If there is evidence of past or present beaver activity, circle one of these choices in addition to your choice.

LENGTH, WIDTH: Record the maximum length and width of lakes and ponds. For streams, record the length and average width of the reach searched.

MAXIMUM DEPTH: Most times, you will not have access to a boat, so estimate depth (deep lakes are usually not important to amphibians).

STREAM ORDER: This is an index of stream size, and you will need a topographic map to determine it. First-order streams have no tributaries, second-order streams are formed by the confluence of two 1st-order streams, third-order streams are formed by the confluence of two 2nd-order streams, and so on.

PRIMARY SUBSTRATE: Circle the type that covers the majority of the bottom of the site.

EMERGENT VEGETATION: Circle the percentage of the margin of the site with emergent vegetation present, and list the dominant species. If you are botanically-disadvantaged, list the categories of the dominant species (e.g., cattail, sedges, etc.).

NORTH SHORELINE CHARACTERS: Describe the north shore of a lake or pond in terms of shallow water and emergent vegetation. This is important in evaluating quality of breeding habitat in some mountain locations.

FOREST CHARACTERS: List the closest distance between the water and the surrounding forest, and list the most common tree species. Leave these fields blank if there is no forest. Describe other surrounding habitat types in the notes section on the back of the form.

AMPHIBIAN SURVEY DATA SHEET - US FISH & WILDLIFE SERVICE, 4512 McMURRY AVE, FT. COLLINS, CO 80525-3400

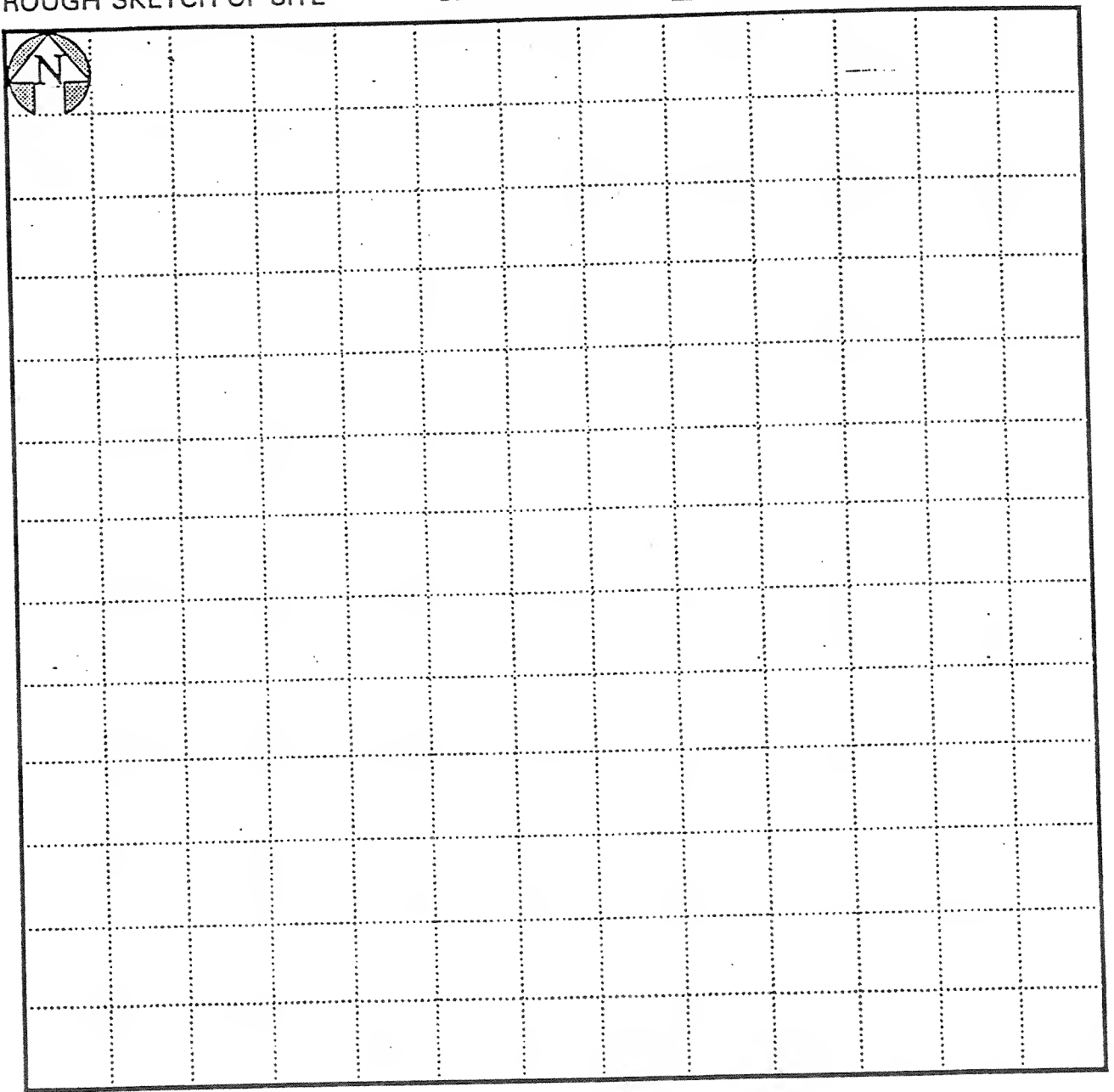
(ver. 2/7/92)

(circle choice for shaded variables; supply value for others)

DATE		BEGIN TIME		END TIME		OBSERVERS	
LOCALITY							
STATE		COUNTY		MAP NAME		OWNER	
ELEVATION (circle scale)		M FT					
T	R	S	SECTION DESCRIPTION		UTM ZONE	NORTHING (or LAT)	EASTING (or LONG)
AMPHIBIAN AND/OR GARTER SNAKE SPECIES PRESENT (INDICATE NUMBERS IN CATEGORIES IF POSSIBLE) CIRCLE METHOD AND INDICATE IF VOUCHER SPECIMEN WAS COLLECTED							
SPECIES		ADULTS/JUVENILES	CALLING?		TADPOLES/LARVAE	EGG MASSES	METHOD:
			Y	N			VISUAL/AURAL ID DIP NET/SEINE HAND COLLECTED TRAPPED VOUCHER COLLECTED? YES NO
			Y	N			VISUAL/AURAL ID DIP NET/SEINE HAND COLLECTED TRAPPED VOUCHER COLLECTED? YES NO
			Y	N			VISUAL/AURAL ID DIP NET/SEINE HAND COLLECTED TRAPPED VOUCHER COLLECTED? YES NO
			Y	N			VISUAL/AURAL ID DIP NET/SEINE HAND COLLECTED TRAPPED VOUCHER COLLECTED? YES NO
			Y	N			VISUAL/AURAL ID DIP NET/SEINE HAND COLLECTED TRAPPED VOUCHER COLLECTED? YES NO
FISH PRESENT?		YES ??? NO	FISH SPECIES:				
ENTIRE SITE SEARCHED?		YES NO	IF NO, INDICATE AREA		METERS OF SHORELINE MP OF HABITAT		
PHYSICAL AND CHEMICAL ENVIRONMENT (CHEMISTRY VARIABLES OPTIONAL - USE EXTRA SPACES FOR ADDITIONAL MEASUREMENTS)							
WEATHER:		CLEAR	OVERCAST	RAIN	SNOW	WIND:	CALM LIGHT STRONG
AIR TEMP (circle scale)	°C °F	WATER TEMP (circle scale)	°C °F	COLOR:	CLEAR STAINED	TURBIDITY:	CLEAR CLOUDY
pH		ANC					
SITE DESCRIPTIONS - (SKETCH SITE AND PUT ADDITIONAL COMMENTS ON BACK OF SHEET) OMIT THIS SECTION IF DATA HAVE BEEN COLLECTED ON A PREVIOUS VISIT							
ORIGIN:		NATURAL	MAN-MADE	DRAINAGE:		PERMANENT	OCCASIONAL NONE
DESCRIPTION:		PERMANENT LAKE/POND	TEMPORARY LAKE/POND	MARSH/BOG	STREAM	SPRING/SEEP	ACTIVE BEAVER POND INACTIVE BEAVER POND
SITE LENGTH (M)		SITE WIDTH (M)		MAXIMUM DEPTH:		< 1 M	1 - 2 M > 2 M
STREAM ORDER		1		2		3	4 5 +
PRIMARY SUBSTRATE:		SILT/MUD		SAND/GRAVEL	COBBLE	BOULDER/BEDROCK	OTHER
% OF POND LAKE MARGIN WITH EMERGENT VEGETATION:		0		1 - 25		25 - 50	> 50
EMERGENT VEGETATION SPECIES (LIST IN ORDER OF ABUNDANCE)							
NORTH SHORELINE CHARACTERS:		SHALLOWS PRESENT		SHALLOWS ABSENT	EMERGENT VEG PRESENT	EMERGENT VEG ABSENT	
DISTANCE (M) TO FOREST EDGE		FOREST TREE SPECIES:					

ROUGH SKETCH OF SITE

GRID SPACING IS ____ METERS BETWEEN LINES



ADDITIONAL NOTES:

Natural Heritage Rare Animal Species Reporting Form

This form is used to report a personal field sighting of a rare species tracked by the Montana Natural Heritage Program. It may also be used to summarize locational information from a published or unpublished report. Animal species tracked include those on the U.S. Fish and Wildlife Service Threatened, Endangered or Candidate Lists, the U.S. Forest Service Sensitive List, the Montana Department of Fish, Wildlife and Parks Species of Special Interest or Concern List, and the Heritage Program Animal Species of Special Concern List. The Heritage Program can provide a copy of the list upon request. For most bird species, only reports of confirmed breeding are requested.

In order for this form to be processed, the sections preceded by two asterisks (**) must be completed.

Send completed form to: Montana Natural Heritage Program, 1515 E 6th Ave., PO Box 201800, Helena MT 59620.

Scientific Name _____ **Common Name _____

Location:

Location Map: A mapped location of the occurrence should accompany this form. The ideal format is to locate the site on a photocopied section of a USGS 7.5 minute topo map; Forest Service, BLM, or other maps may be used. Be sure to provide the name of the map.

County: _____ Township: _____ Range: _____ Section: _____

****Directions to Site:** Describe in detail how to get to the site from a readily located permanent landmark such as a road intersection. _____

Biology/Habitat

****Date and Approximate Time of the Observation:** _____

****Number of Individuals Observed:**

☐ 1-5 ☐ 5-10 ☐ 11-50 ☐ 51-100 ☐ 101-1000 ☐ > 1000

If possible, provide the exact number of individuals: _____

Life Stages Present: Check off the life stages observed or provide an estimate of the numbers of individuals for each life stage:

eggs _____ larvae _____ immature _____ adult female _____ adult male _____ adult, sex unknown _____

Comments: _____

Additional Status Information: What else was observed? Provide information on the behavior of the species particularly that which could indicate or confirm breeding at the site. For birds this could include singing males, carrying nest material/food, dependant young observed, entry of adults into possible nesting cavity, etc.

Associated Species: List any associated species such as predators, prey, food plants, host species, or additional rare species observed at the site.

** Required Field

Habitat Data: Describe the general area where the occurrence is located. List community types, dominant vegetation, and information on the physical environment such as substrate type, hydrology, moisture regime, slope, elevation, and aspect. Also, if possible, provide information on the surrounding land use and extent of additional suitable habitat.

Weather Conditions:

☐ clear ☐ overcast ☐ calm ☐ windy

Describe temperature, precipitation, and other significant weather factors:

Conservation: Are there any natural or human threats to this occurrence? Please describe.

Ownership: If known, please provide landowner name, address and telephone number.

Information Source:

****Name, Address, and Telephone Number** (of person filing report)

****Does this information come from** ☐ a field visit, ☐ a 2nd party observation, or ☐ a published or unpublished report?

Citation: For information taken from a published or unpublished report, please provide a copy of the cover page and pertinent portions of the report. If a copy cannot be provided, list below the author, date, title, publisher, and page numbers.

Voucher: Was the observation vouchered with ☐ a photograph? ☐ a specimen?

If possible, attach a copy of the photograph. If specimen voucher, please provide the collection # and name of the repository:

Identification: How was the species identification made? Was it based on a sighting, track, call, scat, road kill, etc.? Name the identification manual(s) used or expert(s) consulted. Were there identification problems?

Confirmation: Would you accompany a biologist to the site if needed? ☐ yes ☐ no

Additional Comments: (use additional sheets if needed)

**** Required Field**

APPENDIX 5.

NEW ELEMENT OCCURRENCES OF

COEUR D'ALENE SALAMANDERS

FOUND IN 1992-4

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PLETHODON IDAHOENSIS
Common Name: COEUR D'ALENE SALAMANDER

Global rank: G3Q Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Element occurrence code: AAAAD12270.025
Element occurrence type:

Survey site name: WEEKSVILLE
EO rank:
EO rank comments:

County: SANDERS

USGS quadrangle: BIG HOLE PEAK

Township: Range: Section: TRS comments:
021N 027W 35

Precision: M
Survey date: Elevation: 3320 -
First observation: 1991 Slope/aspect:
Last observation: 1991-05-25 Size (acres):

Location:
FROM STATE ROAD # 200, CA. 9 MILES WEST OF PLAINS, GO CA. 0.5 MILE
NORTH UP SMALL SPRING CREEK.

Element occurrence data:
ONE NEARLY DEAD ADULT FOUND WITH HEAD SMASHED, IN BIGHORN SHEEP TRACK.

General site description:
SMALL SEEP ON ROCKY, SOUTH-FACING SLOPE.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:

Information source: MILLER, VERNON E. (GENE). 850, HIGHWAY 200 WEST,
PLAINS, MT 59859.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PLETHODON IDAHOENSIS
Common Name: COEUR D'ALENE SALAMANDER

Global rank: G3Q Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Element occurrence code: AAAAD12270.026
Element occurrence type:

Survey site name: QUARTZ CREEK
EO rank:
EO rank comments:

County: LINCOLN

USGS quadrangle: TURNER MOUNTAIN

Township: Range: Section: TRS comments:
032N 032W 11 CENTER

Precision: S
Survey date: Elevation: 3500 -
First observation: 1993-07-15 Slope/aspect:
Last observation: 1993-07-15 Size (acres):

Location:
CA. 4 MILES NORTHWEST OF LIBBY, TAKE FS RD 600 CA. 8 MILES UP QUARTZ
CREEK TO SMALL STREAM CROSSING.

Element occurrence data:
1 ADULT FOUND IN 5-MINUTE SEARCH AND COLLECTED.

General site description:
STEEP CASCADING STREAM WITH MOSSY RUBBLE BANKS AND SLOPES, SHADED BY
VEGETATION.

Land owner/manager:
KOOTENAI NATIONAL FOREST, LIBBY RANGER DISTRICT

Comments:
REPORTED BY STAN BECKSTROM

Information source: ZOOLOGIST, MONTANA NATURAL HERITAGE PROGRAM, 1515
EAST SIXTH AVENUE, P.O. BOX 210800, HELENA, MT
59620-1800. 406/444-3009.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PLETHODON IDAHOENSIS
Common Name: COEUR D'ALENE SALAMANDER

Global rank: G3Q Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Element occurrence code: AAAAD12270.027
Element occurrence type:

Survey site name: LITTLE NORTH FORK BIG CREEK
EO rank:
EO rank comments:

County: LINCOLN

USGS quadrangle: WEBB MOUNTAIN

Township: Range: Section: TRS comments:
035N 029W 32

Precision: M
Survey date: Elevation: 3000 -
First observation: 1993-05-30 Slope/aspect:
Last observation: 1993-05-30 Size (acres):

Location:
AT FOOTBRIDGE ACROSS LITTLE NORTH FORK BIG CREEK, CA. 700 METERS NORTH
OF BIG CREEK, CA. 1 MILE WEST OF WEST-SIDE HIGHWAY ON LAKE KOOCANUSA.

Element occurrence data:
1 SALAMANDER COLLECTED.

General site description:
MOUNTAIN STREAM WITH ASCAPHUS TRUEI AND TROUT ALSO PRESENT.

Land owner/manager:
KOOTENAI NATIONAL FOREST, REXFORD RANGER DISTRICT

Comments:
REPORTED BY J. REICHEL AND S. BECKSTROM.

Information source: ZOOLOGIST, MONTANA NATURAL HERITAGE PROGRAM, 1515
EAST SIXTH AVENUE, P.O. BOX 210800, HELENA, MT
59620-1800. 406/444-3009.

Specimens: REICHEL, J. (3171). 1993. MTHP.

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PLETHODON IDAHOENSIS
Common Name: COEUR D'ALENE SALAMANDER

Global rank: G3Q Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Element occurrence code: AAAAD12270.028
Element occurrence type:

Survey site name: DEVIL'S GAP
EO rank:
EO rank comments:

County: SANDERS

USGS quadrangle: NOXON

Township: Range: Section: TRS comments:
025N 033W 26 SW4-CENTER

Precision: S
Survey date: Elevation: 2600 -
First observation: 1994-05-04 Slope/aspect:
Last observation: 1994-05-04 Size (acres):

Location:

FROM MARTEN CREEK BAY ON NOXON RESERVOIR, NORTHWEST OF TROUT CREEK, GO
CA. 3 MILES UP FS RD 151 TO DEVIL'S GAP AREA. SITE IS SOUTH OF CREEK
ACROSS FROM CLEARING WITH OLD FOUNDATIONS.

Element occurrence data:

1 JUVENILE COLLECTED IN A 1-HOUR SEARCH.

General site description:

PERMANENT, MOSS-COVERED COBBLED SEEP; WESTERN RED CEDAR, FIR PRESENT.

Land owner/manager:

KOOTENAI NATIONAL FOREST, CABINET RANGER DISTRICT

Comments:

Information source: ZOOLOGIST, MONTANA NATURAL HERITAGE PROGRAM, 1515
EAST SIXTH AVENUE, P.O. BOX 210800, HELENA, MT
59620-1800. 406/444-3009.

Specimens: WERNER, J. K. (MTHP-0005). 1994. INMH.

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PLETHODON IDAHOENSIS
Common Name: COEUR D'ALENE SALAMANDER

Global rank: G3Q Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Element occurrence code: AAAAD12270.029
Element occurrence type:

Survey site name: WEST BANK LAKE KOOCANUSA
EO rank:
EO rank comments:

County: LINCOLN

USGS quadrangle: WEBB MOUNTAIN

Township: Range: Section: TRS comments:
035N 029W 35 SE4NE4

Precision: S
Survey date: Elevation: 2600 -
First observation: 1994-05-17 Slope/aspect:
Last observation: 1994-05-17 Size (acres):

Location:
ABOVE FS RD 228 ON THE WEST SIDE OF LAKE KOOCANUSA, CA. 2.7 ROAD MILES
NORTH OF THE BIG CREEK BRIDGE.

Element occurrence data:
ONE ADULT COLLECTED DURING A 1.25-HOUR SEARCH.

General site description:
10-FOOT LONG SEEP AT ROADCUT, WITH MOSS-COVERED BOULDERS/BEDROCK PLUS
SAND AND GRAVEL; PONDEROSA PINE COVER.

Land owner/manager:
KOOTENAI NATIONAL FOREST, REXFORD RANGER DISTRICT

Comments:

Information source: ZOOLOGIST, MONTANA NATURAL HERITAGE PROGRAM, 1515
EAST SIXTH AVENUE, P.O. BOX 210800, HELENA, MT
59620-1800. 406/444-3009.

Specimens: WERNER, J. K. (MTHP-0016). 1994. INMH.